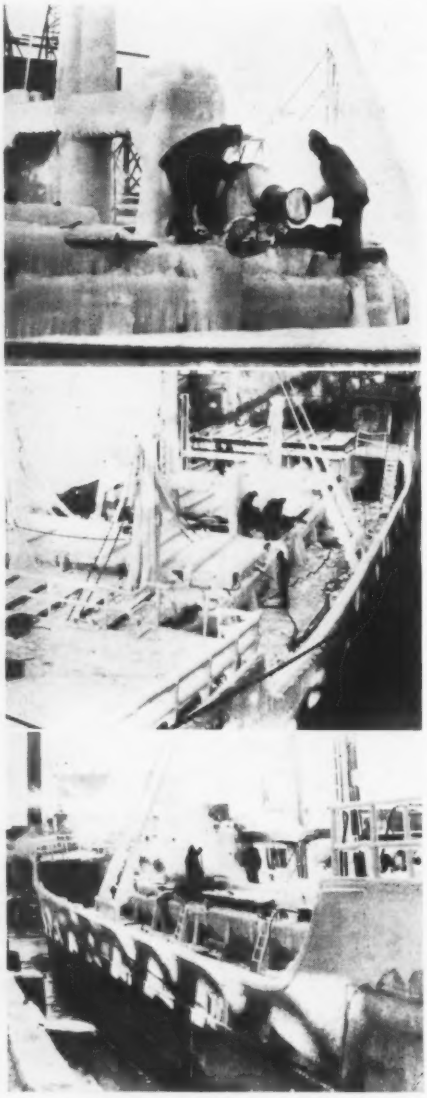
• Office Machines Issue •

FINGERS ON THE KEYBOARD is the symbol of the efforts of Christopher Latham Sholes to improve the economic position of women and of the accomplishments of many practical men who brought complete realization to an inventor's dreams.

CONNECTICUT INDUSTRY

SEPTEMBER 1934



Views of the S. S. "Coastwise" at the T. A. D. Jones dock in New Haven during the rigorous weather of last winter.

No Sister to Admiral Byrd's Flagship...*BUT*

THIS Steamer S. S. "Coastwise" with 6,200 gross tons of NEW RIVER coal and dead-head tons of ice plowed its way through icy seas in sub-zero weather during last winter's blizzard between Norfolk, Va. and New Haven's ice locked harbor to unload at T. A. D. Jones' dock each week. . . .

On Schedule

While the crew cut away the thick coating of ice from the hawsers making ready to tie up, tobogganed youngsters glided by on skates and bicycles within 25 feet of the main channel.

SPRING thaws have erased the last marks of King Winter's destructive moments only to give way to a torrid sun that has brought discomfort, drought and heat prostrations. Without contrasts life would be extremely dull.

Moral

PREPARE FOR THE NEXT BIG CONTRAST WITH COAL AND OIL HEAT AND POWER INSURANCE.

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T. A. D. JONES & COMPANY, INC.

DOCKS

NEW HAVEN BRIDGEPORT

NEW RIVER . . . NAVY STANDARD COAL . . . PENNSYLVANIA COAL

INDUSTRIAL FUEL OIL

CONNECTICUT INDUSTRY

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L. M. BINGHAM, Editor

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LEATHER CHAIR DROWSINESS

By E. KENT HUBBARD

For some unaccountable reason, stockholders of industry have not collectively, up to the present time, recognized their responsibility to themselves and to industry in voicing their thoughts on much that has been done and is contemplated in our national and state legislative halls.

Equally unaccountable is the attitude of certain labor leaders who retain the feudal idea that labor is something apart from the industry in which it is employed.

Apparently candidates for public office still harbor the notion that industry consists solely of salaried officials or part-owner executives. Consequently, office-holders and aspirants have not realized that their acts of unwisdom affect a wide cross-section of the population. In highly industrialized states, like Connecticut, a legislative attack on industry, a coercive measure passed, or a hamstringing bill enacted, affects personally and directly practically all of the voting population.

This year every single stockholder, manager, or employe should, from now until election, freely state his mind. In Connecticut we are to elect a United States senator, a governor, a lieutenant-governor, a secretary of state, a state treasurer, a comptroller, an attorney general, six congressmen, thirty-five state senators, two hundred and sixty-seven members of the state House of Representatives, and numerous local officials. We need not be interested in the party stamp. We should, as never before, turn a deaf ear to party slogans which call upon us to "pull the first (or second) lever". The issues are not the levers on a voting machine and are worthwhile only as they are interpreted and acted upon by individual candidates. Issues are a guide only when they are made by those who are willing to keep their promises. A "friend of labor" is not a friend if he supports bills in Congress or in the legislature which cause industrial strife and loss of employment, or if he aids in the enactment of legislation which retards the normal flow of commerce, reduces profits or employment. No candidate is a "friend of industry" if he permits political considerations to guide his voting.

During the months of September and October, the question of candidates for public offices ought to be the subject of discussion

(Continued on page 31)

OFFICE MACHINES

By L. M. Bingham

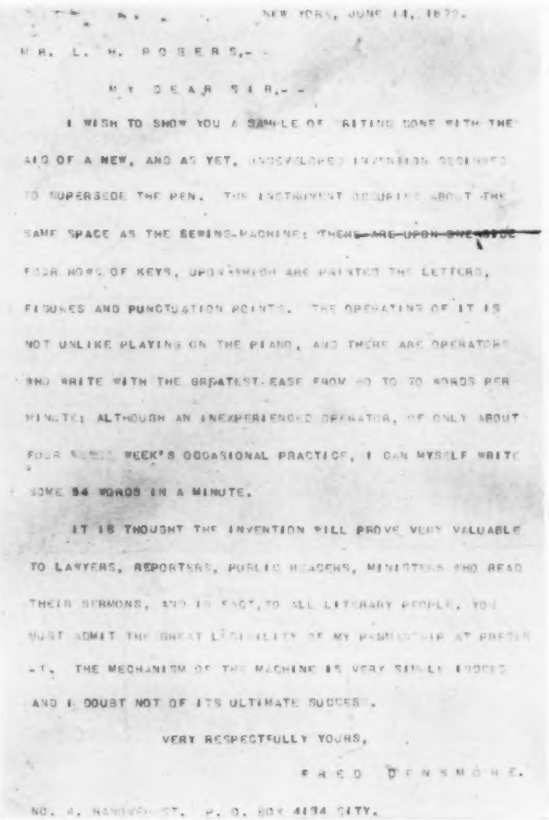
Ho-o-o-h hu-m-m—5 o'clock. It's bed-time for over 3 million Connecticut-made typewriters, adding and accounting machines and meter mailers. . . But for these machines modern business even with its present low blood pressure would pass out. . . Reason: Bolles and all of his bookkeeping and stenographic cohorts couldn't do the work by hand working 24 hours a day. . . A man named Sholes worked out the first machine idea. . . Bell had another. . . Bowes had a third. . . Three companies operating in Connecticut produce over 70% of the nation's typewriters. . . Another, 50% of the dictating machines. . . A fifth makes the bulk of the metered mailers. . . Their names . . Remington Rand . . Underwood Elliott Fisher . . Royal . . Dictaphone . . Pitney Bowes

Part I
The Story of the Typewriter

By ten o'clock every work-a-day morning, even during the sluggish days of '34 A. D., over 20,000,000 fingers are playing the overture of America's domestic business and on machines designed by American manufacturers. All through the day, thousands of voices, tuned to good reception, roll out through mouth-pieces onto cylindrical rolls, or are translated into shorthand notes to set the pace for today's and tomorrow's activities. Millions of letter messages have made their exit from prepaid postmark mailers (Postage Meters) to make the 5:15 instead of the 7:54—the heavy mail train of the early twenties.

Since '73, within the memory of many now living, brains outside the "brain trusts" worked prodigiously to improve the first crude writing-machine, which was started through production lines by E. Remington & Sons Company of Ilion, New York, in the year 1873. (Another historian places the date in 1876, the Centennial year.) A considerable number of inventive minds had been troubled for about twenty years previous over the slowness of the pencil, pen, and printing press to carry on the ever-increasing task of recording yesterday's and charting tomorrow's business. But despite the growing need and increasing number of inventive minds turned to the task of producing a workable writing-machine, it remained for Christopher Latham Sholes, printer, publisher, and editor—a gentle, brilliant, and idealistic dreamer—to translate his dreams and others into the first practical writing machine, which was destined to emancipate executives from pen drudgery; women from their narrow economic groove—domestic housekeeping, dressmaking, and school teaching.

Penciled shorthand notes have been an aid to royalty and a scattered few men of wealth and learning since Cicero freed the brilliant slave, Marcus Tullius Tiro, to make him his secretary. Although no modern secretary would have the time nor patience to learn the 5,000 signs for words used by this patient ancient, it was he who started to blaze the first path toward the present day efficiency of the twin arts—shorthand and typewriting. After him came Atticus, the famous Roman book lover, who trained a large force of slaves in the art to become the first known publisher before the days of the printing press. Even the dynamic Roman Emperor Titus mastered the voluminous shorthand notes of Tiro. Sermons of the great



NEW YORK, JUNE 14, 1870.

MR. L. H. ROGERS,-

MY DEAR SIR,-

I WISH TO SHOW YOU A SAMPLE OF RITING DONE WITH THE AID OF A NEW, AND AS YET, UNDEVELOPED INVENTION DESIGNED TO SUPERSEDE THE PEN. THE INSTRUMENT OCCUPIES ABOUT THE SAME SPACE AS THE SEWING-MACHINE; THERE ARE UPON ONE STYLE FOUR ROWS OF KEYS, UPON WHICH ARE PRINTED THE LETTERS, FIGURES AND PUNCTUATION POINTS. THE OPERATING OF IT IS NOT UNLIKE PLAYING ON THE PIANO, AND THERE ARE OPERATORS WHO WRITE WITH THE GREATEST EASE FROM 60 TO 70 WORDS PER MINUTE; ALTHOUGH AN INEXPERIENCED OPERATOR, OF ONLY ABOUT FOUR WEEK'S OCCASIONAL PRACTICE, I CAN MYSELF WRITE SOME 24 WORDS IN A MINUTE.

IT IS THOUGHT THE INVENTION WILL PROVE VERY VALUABLE TO LAWYERS, REPORTERS, PUBLIC READERS, MINISTERS WHO READ THEIR SERMONS, AND IN FACT, TO ALL LITERARY PEOPLE. YOU MUST ADMIT THE GREAT LEGIBILITY OF MY MANUSCRIPT AT PRESENT. THE MECHANISM OF THE MACHINE IS VERY SIMPLE INDEED AND I DOUBT NOT OF ITS ULTIMATE SUCCESS.

VERY RESPECTFULLY YOURS,

FRED DENSMORE.

NO. 4, NASSAU ST. P. O. BOX 4134 CITY.

A LETTER written by Densmore on an early experimental model.

church Fathers, Origen, St. Augustine, Savonarola, and others were recorded in shorthand. Roger Williams, Samuel Pepys and Charles Dickens used shorthand notes. Then came Isaac Pitman and others who have followed him, to perfect the shorthand system by using characters representing the spoken sound of words insteads of the spelling. Pitman's original system, with a number of deviations and improvements, has been handed down under the names of those making them as the universal shorthand methods of today.

The first recorded move to free mankind from the bondage of the pen, did not evolve from the now generally recognized "universal channels" of thought until Henry Mill, an English engineer, was granted a patent in 1714 by Queene Anne on "*An artificial machine or method for the impressing or transcribing of letters singly or progressively one after another, as in writing, whereby all writings whatsoever may be engrossed on paper or parchment so neat and exact as not to be distinguished from print; that the said machine or method may be of great use in settlement on public records, the impression being deeper and more lasting than any other writing and not to be erased or counterfeited without manifest discovery. . . .*" The description of the patented writing device sounded promising but no known use was ever made of it and no evidence remains to show that the idea was ever progressed beyond the dream stage. But that dream was sufficiently materialized to record Henry Mill in history as the first man to conceive the idea of a machine that would eventually end pen drudgery.

The daughter of Sholes writing on one of his experimental machines in 1872.

One other invention only, that of a machine to emboss characters for the blind invented in 1784, was recorded in the 18th century. Andrew Jackson, as President of the United States and Martin Van Buren as Secretary of State, signed the first patent for a mechanical writing machine which was granted to William Austin Burt of Detroit in 1829. The model of the machine was destroyed by a patent office fire in 1836 but was later recreated and exhibited at the World's Columbian Exhibition in 1893. Never manufactured, Mr. Burt's box-like arrangement, carrying type on a segment of a circle instead of a type bar, was at least workable and can rightfully be considered as the ancestor of the present-day type wheel machine.

The next recorded effort was in France where Xavier Projean of Marseilles patented a device known as a "Ktypographic" machine or pen which consisted of an assembly of type bars arranged in a circle with each type striking downward upon a common center in much the same manner as the present day type bar machine. It was a strange happenstance that the first two physical developments in the writing machine field should embody the same two principles of construction—type wheel and type bar—which still remain in modern typewriter manufacture. Like Burt's, the Projean machine contained only the germ of an idea because it would not print as fast as one could write with an ordinary pen and therefore was too slow to be practical.

Under the impetus of the newly invented telegraph, which made it desirable to produce a telegraphic printing mechanism, a patent was granted to Alexander Bain and Thomas Wright on a writing machine for use in connection with the telegraph. Although of little importance in the typewriter field since its principles were later utilized in the production of an improved telegraphic printer, they served to stimulate activity on this side of the Atlantic which resulted in two patents being granted in 1843 and 1845 on a machine invented by Charles Thurber of Worcester, Mass. Save as a curio, one of which rests in the Smithsonian Institute at Washington and the other being preserved by the Worcester Society of Antiquarians, the Thurber machine was not in the strictest sense a "writing machine" at all, but rather a device which would perform the motions of the hand in writing, being intended principally for the use of the blind.

Another development of a similar type was produced by a blind teacher, Foucault, a teacher in the Paris Institute for the Blind. More successful than former models, this embossing machine worked very well and was awarded a gold medal at the World's Fair in London in 1851. A number of them were built and remained in service for many years in institutions for the blind in different parts of Europe.

The strongest inventive patent trend again recrossed the Atlantic to America, where it stimulated more intensively than ever before a greater number of mechanical minds until a successful working model was finally achieved. From 1850, when Oliver T. Eddy of Baltimore produced an ingenious, piano-

like writing machine which did good work but was too cumbersome for practical use, until Sholes' typewriter went into production in 1876, there were dozens of queer looking models produced ranging from cumbersome ones the size of a piano to a small one that would fit the pocket. Worthy of most praise was the later effort of Dr. Samuel Francis, a wealthy physician of New York, who actually built a machine that exceeded the speed of a pen. Beyond that, it was classed in the "too cumbersome and too slow" category which barred all of the earlier writing machines from production lines.

Enter Sholes, Soule, Glidden and a Mechanic named Schwalbach

If a psychologist had set out to prove, in the winter of 1866-67, that the temperate to extreme cold climate of the central northern states was most

Sholes and the first commercial typewriter built by E. Remington & Sons.

conducive to inventive efficiency, he could scarcely have found a more perfect proof than the case of three middle-aged men in Milwaukee who came together by chance meeting to complement each other in developing the first successful writing machine. Not one of these men was an engineer or even a mechanic by trade. Sholes and Soule were printers, with the former having earned other laurels as an editor and publisher and a place in the public eye through service in the state legislature. Each was attempting to produce a successful numbering machine of his own which would number serially the pages of blank books and any others which might need such identification. Carlos Glidden, son of a successful ironmonger of Ohio, was attempting to produce a mechanical spader to replace the plow. A chance question put to Sholes by Glidden, who had become more interested in the former's paging machine than his own invention, plus an article and editorial in the Scientific American, are believed to have been the chief motivating forces which set all three to work on the writing machine invention, with Sholes as the chief idea man. The question was, "Why cannot such a machine be made that will write letters and words and not figures only?" The magazine article told of John Pratt's invention in London of a writing machine called the "Pterotype" which was designed to do just what Glidden had suggested in his question. In a sense contradictory but equally plausible is the story once related by Thomas G. LeDoux (his interest in invention of typewriters dates back to 1850 and he was later the first man to introduce typewriters into government service), who told about visiting Milwaukee in 1867 and on discovering Sholes and Glidden working on the book-paging machine, suggested to them the idea of producing a writing machine.

The aid of skilled mechanics was sought at Kleinsteuber's Machine Shop, chief of these being Matthias Schwalbach, who had already aided Sholes on his paging machine. Not content with merely carrying out the ideas of the other three men, Schwalbach worked out a few excellent ideas of his own which proved of great value to the inventors. The first crude machine became a reality in the autumn of 1867 but was not patented until 1868. It wrote accurately and rapidly despite its defects, and a letter written on it was the means of interesting the practical friend of Sholes, James Densmore, oil operator, editor and publisher of Meadville, Pennsylvania, who shortly afterward purchased an interest in the machine without even seeing it. When he looked it over the following March (1868), he pronounced it worthless except to show that the idea of a writing machine was feasible.

A Study in Contrast

Sholes and Densmore were complete opposites. Sholes was an idealistic dreamer who envisioned an Utopia devoid of poverty where all mankind would live together in peace. Never strong physically, he had traveled west as a young man to overcome a tendency toward tuberculosis. Subsequently he developed into a brilliant and cultured scholar whose talents were manifest in his writings as well as his inventions. He was modest in the extreme to the point where he always published criticisms of his paper but never favorable comments. He has been described as the most unselfish, kind-hearted and companionable man that ever lived. Indifferent to wealth, though by chance prior to his invention of the typewriter he had acquired it only to lose it shortly afterward, he remarked to a friend that he had lived all his life to escape becoming a millionaire and had succeeded admirably. The driving force in his life was "service to his fellow men". The evidence is to be found in his statement after his invention of the typewriter, "I feel that I have done something for the women who have always had to work so hard. This will enable them more easily to earn a living."

James Densmore was the exact opposite of Sholes in practically every respect, being an intensely prac-

tical man of affairs with imagination, foresight, energy and courage. He has likewise been described as bold, aggressive and arrogant, and with respect to food was distinctly a "crank". He was a militant vegetarian, his diet chiefly consisting of raw apples. Always impervious to ridicule, he did not hesitate to start an argument with meat eaters in public eating places. But in his own way, he was kind to Sholes who needed his encouragement to overcome the many difficulties in the path to a practical writing machine.

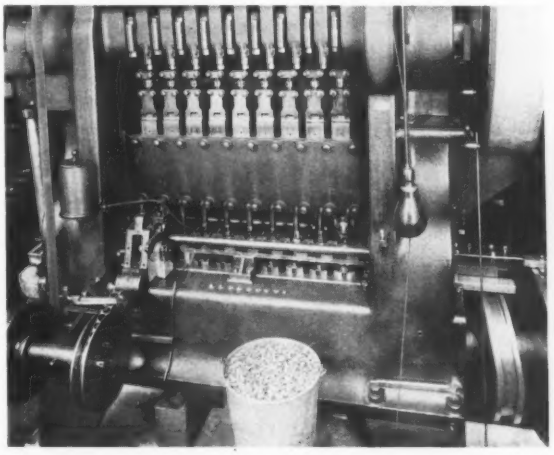
Other Aids to Success

Several other men played prominent roles in the early typewriter story during the building of over 25 experimental models. They were testers and critics, the first being James Ogilvie Clephane, an official shorthand reporter of Washington, D. C. As an operator of Sholes' experimental machine, he became such a severe critic that the inventor would have likely given up his effort had it not been for Densmore's prodding and encouragement. Another tester and critic was Charles E. Weller, who was a telegraph operator and shorthand student in Milwaukee in 1867. Sholes had come to borrow a sheet of crude carbon paper from Weller and while there told him of his writing machine invention. Weller became so interested that Sholes offered to give him the first completed model. It reached Weller in St. Louis in January, 1868 (Weller had removed there to become a shorthand reporter shortly after his first meeting with Sholes). The letters received by Weller during this testing period are striking character portraits of Sholes in his various moods. Each letter had an air of finality about it, but there were always changes to report.

Before Weller had received his first machine, Sholes had christened it a "type-writer", the first appropriate and common sense name to be given to a writing machine—all former inventors having experienced even more difficulty in finding a proper name than in inventing the machine. Also before the final experimental machine was ready for production, Sholes had received some valuable assistance from Thomas A. Edison, who had a shop in Newark, N. J. At about the same time the beginnings of the partnership between telegraphy and the typewriter (then dubbed the "mill" by telegraphers) were started when E. Payson Porter, one time known as "dean of American telegraphers", demonstrated his ability to receive and type messages as fast as an expert could send them. Today this partnership is as firmly entrenched as the one between the typewriter and shorthand.

Like many other inventors, Sholes had built better than he knew. As indicated in one of his despondent letters he wrote, "You know that my apprehension is that the thing may take for a while, and for a while there may be an active demand for them, but that like any other novelty, it will have its brief day and be thrown aside. Of course, I honestly hope that such will not prove to be the case, and Densmore laughs at the idea when I suggest it, but I should like to be sure that it will be otherwise."

It was the marriage of Sholes' inventive genius with Densmore's sustaining faith that saved the typewriter from the novelty class—started it on its invaluable career of service to mankind.



THE key cup drawing press that makes the cups that support the typewriter keys. It weighs 4 tons. Key cups for one typewriter weigh about 2 ounces. It was designed by a typewriter executive.

Introduced to E. Remington and Sons

The ancestor of Remington Arms Company and one of the forbears of the largest association of office machine and supply companies—Remington-Rand, Inc.—was E. Remington & Sons of Ilion, New York. This famous firm of gun makers traced its origin back to 1816 when a boy, Eliphalet Remington, on being refused by his father the money to buy a rifle, welded a gun barrel from iron scrap which, after rifling, became the envy of the neighbors. Soon he was making and selling other guns at his father's forge. The business grew rapidly into the great gun factory which did much to equip the Northern armies during the Civil War. By 1873, it had added other lines to its manufacture including sewing machines and agricultural implements. So to this successful company Densmore wrote in February, 1873 (Densmore unknown to the company) asking for an opportunity to show the precious model—the outcome of six years' effort on the part of the inventors. He addressed his letter to the attention of Philo Remington, president and active manager of the company, asking if he would care to manufacture the machine.

Henry Harper Benedict, later destined to be an important factor in launching the typewriter on the road to commercial success, chanced to see the queer typed letter on Mr. Remington's desk and made inquiries. Mr. Remington said, "Read it." Benedict read it with interest and urged Remington to look it over. So to a room in the Osgood House in Ilion, came Mr. Densmore and a glib-tongued oil salesman named George Washington Newton Yost,

with the model. Mr. Densmore had realized his weakness as a salesman as well as Sholes' and therefore wanted to have the story told by a master salesman. Yost told a most convincing story which, on March 1, 1873, resulted in a contract for the manufacture of the machine. A short time afterwards when Densmore had proved unsuccessful as a selling agent, Remington acquired complete ownership of the machine, giving a royalty to Densmore, which finally enriched him. Sholes later accepted $12,000 and $2500 per year until his death from Densmore as his reward for the invention.

From the time the first crude model was passed over to E. Remington & Sons, William K. Jenne replaced Sholes as the leading light in the development of the typewriter. Jenne, like Sholes, originally came from New England stock and in 1873 held an important position in the sewing machine department. But almost immediately afterwards he was made superintendent of the typewriter works, a position he continued to hold until his retirement in 1904. Under his leadership "Model 1 Remington" took on form as the first commercial "ancestor of all writing machines".

The Early Market

Sholes, with the aid of Glidden, had built the first crude model; Densmore had footed the bill and sold Remington, through his spokesman Yost, the idea of producing it. Jenne and his assistants had refined it for production purposes. Who was to buy it? Here is what the early builders thought about it as told by the first catalog. They described it "in size and appearance as resembling somewhat the Family Sewing Machine." They also said, "it is graceful and ornamental—a beautiful piece of furniture for office, study or parlor". (Note early selling point of "beauty" rather than modern one of "utility"). Another claim which would be doubted today said, "persons traveling by sea can write with it when pen writing is impossible". First in the list of prospective users as described by the catalog came the court reporters, followed by lawyers, editors, authors and clergymen. The merchant or business man who today are the largest users were mentioned last in an obscure part of the catalog.

What did prospective users think of this new gadget that would supersede the pen? They looked at it in large numbers with its special mother of pearl finish at the Centennial Exposition in 1876. They were curious but were neither dazzled nor convinced. Some ridiculed; a few bought; but most of the revenue was received from selling samples of typewriting as curios for a quarter each. In striking contrast, Alexander Graham Bell stood with his first telephone invention, an Emperor by his side, while news of his great achievement was heralded throughout the world by cable dispatches and newspaper headlines. By comparison, the typewriter invention was like an insignificant sideshow at a circus contrasted with the "big tent"—the telephone. Many of the most interested were skeptical of the machine's utility—objected on the grounds that it wrote capital letters only. They could not swallow the idea of paying $125 for a machine when a pen could be bought at that time for a penny.

Even a prominent early user of the typewriter, Mark Twain, wished to keep the matter a secret. He first described it in a letter to his brother on December 9, 1884, as follows, "I believe it will print faster than I can write. One may lean back in his chair & work it. It piles an awful stack of words on one page. It don't muss things or scatter ink blots around. Of course, it saves paper." In another letter, written to E. Remington & Sons in March, 1875, he said in part, "I have entirely stopped using the typewriter for the reason that I never could write a letter with it to anybody without receiving a request by return mail that I would not only describe the machine but state what progress I had made in the use of it, etc., etc. I don't like to write letters, and so I don't want people to know I own this curiosity breeding little joker."

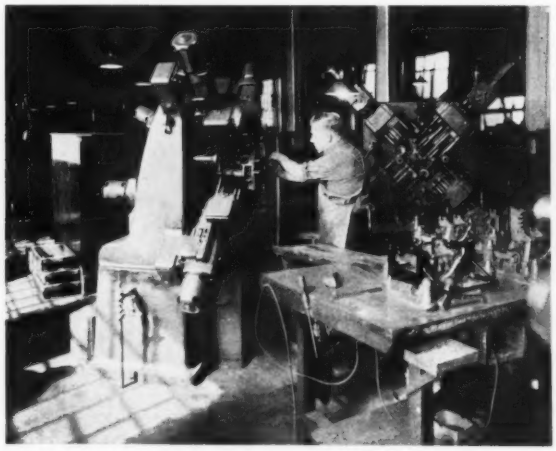
A Kentucky mountaineer returned his first typewritten letter to the writer with an indignant long hand note scribbled at the bottom: "You don't need to print no letters for me. I kin read writin." A Texas insurance man reported that he received the following letter from one of his agents in response to one of his typewritten letters. In part it says, "There is a matter I would like to speak to you about. I realize, Mr. John, that I do not profess the education which you have. However, until your last letter I have always been able to read the writing. I do not think it was necessary then, or will be in the future, to have your letters to me taken to the printers, and set up like a hand bill. I will be able to read your writing and am deeply chagrined to think you thought such a course necessary." In the face of this public reaction, it can readily be seen that the early typewriter salesman earned even more than he made.

Marketing this machine meant selling an idea rather than the typewriter. It meant setting up free employment departments to educate stenographers and typists in the use of the machine. It was the pioneering teaching of typewriting by the early typewriter companies that stimulated the organization of commercial schools and ultimately brought about the great union of the "twin arts"—typewriting and shorthand—which has proved to be the most remarkable partnership in business history. According to positive records the first school to teach typewriting was opened by D. L. Scott-Browne at 737 Broadway, New York, in 1878. Also in the same year the typewriter gained in popularity through the introduction of Model 2 Remington, the first typewriter to write both capitals and small letters by the use of a shift key.

Early Selling Agents

Densmore and his emissary to E. Remington & Sons, Yost, were the first selling agents. When Densmore withdrew personally the agency became Densmore, Yost & Company which finally became Lock, Yost and Bates, a firm made up of D. R. Locke (Petroleum Z. Nasby, a famous humorist and friend of Mark Twain who was with the latter

when he purchased his first typewriter from a Remington show window in Boston in 1874), G. W. N. Yost and J. H. Bates. None of these agents were successful. Sales and manufacturing debts of E. Remington & Sons grew so great that in desperation they turned to Fairbanks & Company, the well known scale makers, in the belief that their well-organized facilities would greatly increase sales. Almost the first act of the Fairbanks company was to appoint Clarence W. Seamans as manager of typewriter sales. This was the first step



THIS drilling and tapping machine, also a special machine designed by a typewriter executive, has 39 spindles equipped with tools which drill, ream and tap all holes necessary in a typewriter frame all in one operation.

in the chain of events which led to the commercial success of the typewriter.

Seamans, a native of Ilion, New York, who had had five years' experience in the Remington gun factory and three years as manager of a silver mine in Utah, was entrusted with this big job at the age of 23 against the advice of Philo Remington, but with the recommendation of Yost and Henry H. Benedict, Mr. Remington's trusted assistant. Plunging into the new job with the vigor and optimism of youth, Seamans battled great odds for the next three years showing some progress, when E. Remington & Sons took over the selling agency, retaining Seamans as its head. Despite this progress, the actual sales in 1881 totaled 1200 machines, or less than the number sold in Hartford, Connecticut, in 1933. Far from satisfied with the results, Mr. Seamans associated himself with Henry H. Benedict and W. O. Wyckoff of Ithaca, New York, the widely known court reporter, which resulted in the formation of the historic firm of Wyckoff, Seamans and Benedict in August, 1882. Ambition and confidence in their ability, which later proved to be well founded, caused them to sign a contract with Mr. Remington to concede them the selling agency for the world for which they agreed in turn to take all machines the manufacturers could produce.

As a court reporter, Wyckoff early visualized the commercial feature of the typewriter, and accordingly had secured the selling agency for central New York state, prior to his association with Seamans and Benedict. At the very start of his new venture his entire staff refused to use the new machine. Wyckoff's answer was, "Use it or quit", and they used it. This command coupled with the sage advice and encouragement he gave to one of his earlier typewriter salesmen, J. Walter Earle, serves well as a true character sketch of Wyckoff who entered with Seamans, master salesman and organizer, and Benedict, also a foresighted organizer of business judgment, to form the firm which was the first successful typewriter missionary in the world.

After the German market had been entered in 1883, an office opened in Paris in 1884 and the Russian market invaded in 1885, with Russian characters, Dame Rumor carried the news to the partners that E. Remington & Sons was about to sell its interest in the typewriter, thus imperiling the excellent groundwork for the future of their enterprise. Immediately Mr. Benedict took the train to Ilion to check the tale. On finding it to be true, because of the large debts which had been piled up, he counselled his former chief against selling, but without avail. To the adamant Mr. Remington, Benedict said, "You are determined to sell, are you?" "Yes," replied Remington.

"Very well," remarked Benedict, "I have given my advice. Now I want to buy the plant."

A certified check for $10,000 was mailed that night from the New York office of Wyckoff, Seamans & Benedict to bind the bargain for the purchase of the entire plant, machinery, all patent rights, franchises, etc. Thus the original tail of the business devoured the dog.

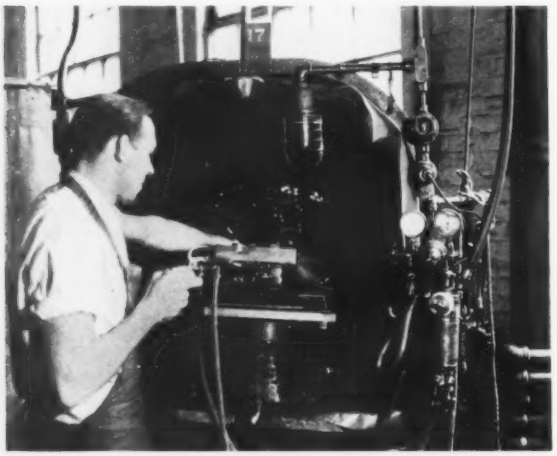
In 1892 the original co-partnership was changed to a mercantile corporation which included the manufacturing company and in 1903 was incorporated and the name changed to Remington Typewriter Company, headed by Mr. Benedict as its first president.

Since 1874 when the English market was first entered, the following foreign markets besides those already mentioned were entered: Belgium market opened in 1888; Italian market in 1889; Holland in 1890; Denmark in 1893; and machines were sold in Greece in 1896. Rapidly thereafter Remington established special schools for training typists in many foreign cities extending their typewriter conquests to South America, Africa, the Far East and even to Iceland.

Training Factors in Typewriter Success

The "hunt and peck" system of typing was the first to be used by sighted operators, but paradoxically the "touch system" was a discovery of the blind. Frank E. McGurrin, a clerk in a law office in Grand Rapids, Michigan, who afterwards became the champion speed operator of his time, learned the art of touch typing by himself on a Model 1

Remington in 1878. His exhibitions of speed during the 80's proved to have the highest educational value, especially after he defeated Louis Traub, a "hunt and peck" instructor, during a contest held in Cincinnati in July, 1888. Although Mrs. M. V. Longley started the first business school in Cincinnati (known as Longley's Shorthand and Typewriter Institute) to begin systematic instruction by the all-fingers touch method, in 1881, and published her "Remington Typewriter Lessons" the following year, it is generally believed that Mc-



ENAMEL spraying machine where typewriters take on their coats of enamel.

Gurrin's touch system exhibition and his decisive victory over Traub, did more to popularize the method among the earliest commercial schools than any other factor.

H. V. Rowell, for many years manager of the Remington office at Boston, became an advocate of the touch system in 1882 and was responsible for its being introduced by the first business educator, W. E. Hickox, at his private shorthand school at Portland, Maine, in the same year. Rowell continued his efforts and in 1889 interested B. J. Griffin of the Springfield Business School, Springfield, Massachusetts, who began teaching it to the exclusion of all other methods. In the same years, Bates Torrey, of Portland, Maine, published the first printed manual called "A Manual of Practical Typewriting" advocating the "touch" system. By 1901, as shown by a Remington survey of all commercial schools in America, half of them had started instructions by the new touch method.

Improvements that Broadened Typewriter Field

During the first twenty-five years of typewriter history, the time-saving service of the typewriter was largely confined to straight line-by-line writing such as letter writing and manuscript writing. There was no incentive to produce more than that type of a machine until these fields had been worked to some extent. It was for this reason that form, tabular and statistical writing remained for many years outside the reach of the ordinary typewriter. The early machines lacked the mechanism for the instantaneous setting of the carriage at any desired writing point and hand setting consumed more time than could be saved by actual typing.

The earliest typewriter had a step-by-step escapement mechanism which caused the letter-spacing travel of the paper carriage. It had type bars on which type was mounted and printed at a common center. It fed paper around the cylinder; was equipped with line spacing and carriage mechanism; printed through a ribbon traveling across the printing point and had the standard number of printing keys placed in four rows. In short it was the arrangement now known as the "universal key board". To these fundamental features the Model 2 Remington of 1878 added the shift key mechanism with two types mounted on a single bar. All of these features are to be found in the leading writing machines of today, but were not placed there finally until after 50 years of controversy in typewriter history. John Pratt, of London, who gave Sholes the first idea of the typewriter, had built a type wheel machine known as the "Pterotype", a number of which were produced and sold in England. They were unsuccessful because the printing wheel would not move quickly and stop instantly. After working over the problem for years, he made application at the U. S. Patent Office but found interference with two other inventors, James C. Hammond and Lucien S. Crandall. To break the deadlock Pratt gave precedence to Hammond on the type-wheel machine but received a royalty. Crandall proceeded with his application for patent on a type-sleeve instrument. The Hammond machine was patented in 1880 to become the first practical type wheel machine of a so-called "ideal" key board, semi-circular in shape. Later a "universal" key board was adopted.

Then came the issue of the single vs. the double key board, the latter being called the Caligraph, devised under the direction of Yost (Densmore's emissary and first partner in a typewriter sales agency) principally by the skilled German mechanic, Franz X. Wagner, who afterwards was the inventor of Number 1 Underwood Typewriter. Yost failed in his purpose to evade the Remington patent, but was subsequently granted a license. Later in 1890 Lyman C. Smith, the gun manufacturer of Syracuse, placed on the market the invention of Alexander T. Brown, which became known as the leading double-key board machine, marketed for years as the Smith-Premier. Builders of the double-key board machine claimed that it would be easier and simpler for a beginner to operate, but since the construction was more complicated because of doubling the number of type bars and connecting parts, mechanical difficulties increased the upkeep cost. It was the universal acceptance of the touch system which finally eliminated the double key board machine.

Yost made his last stand in the typewriter field by producing a machine which used an inking pad

instead of ribbon. This principle had many advocates until after the proven success of the automatic ribbon reverse designed by George D. Webb and placed on the Remington machine in 1896. Prior to this time ribbons were often "chewed up" and work spoiled when the operator failed to keep one eye on the ribbon and reverse it at the proper time.

Since all of the earlier machines printed at a common center on the under side of the cylinder, making it necessary for the operator to raise the carriage in order to see the wording, inventors started early to work on type bar visible writers in order to compete with the visible writing type wheel machine. Prominent among these machines was the Columbia Bar Lock produced in 1888; the Williams in 1890; and the Oliver in 1894. All were down stroke machines, the first front stroke machine to attain prominence being the Underwood, invented by Franz X. Wagner (inventor of Caligraph) and first placed on the market by John T. Underwood in 1897. More will be told of this machine under the individual history of the Underwood Elliott Fisher Company. The front stroke principle proved to be a satisfactory solution of the problem of visible writing since all the leading standard machines are now of this type.

Scarcely had the problem of non-visible writing been solved by the perfection of the front stroke visible type bar machine when users began to ask for quieter machines. Although all typewriters have been greatly silenced during the past decade, the Noiseless (story of this told under Remington Rand history) was built around this central idea. Other demands of users that manufacturers have sought to supply are: touch control, speedier writing, automatic electric shift, etc. Presumably the demands will continue ad infinitum.

Educational Advantages

Though it was apparently known 59 years ago that the use of a typewriter aided children to spell and punctuate (an advertisement written then said so), it can truthfully be said to the millions who now doubt the truth of the ad when written, that it has since been proved by the exhaustive scientific investigation made by Dr. Ben D. Wood, head of the educational research department of Columbia University and Dr. Frank N. Freeman of the University of Chicago. Started in 1929 under the direction of the Typewriter Educational Research Bureau, it was carried on for two years with 15,000 pupils, in 51 schools in New England, the Middle Atlantic and Middle Western states, as subjects. Four hundred teachers supervised and made accurate records of progress. The children were divided into a series of paired groups, each pair being as nearly alike as possible in age, number, racial background, home environment, classroom conditions, etc. One group in each such pair used typewriters while the other did not. Achievement tests of several kinds were given at the beginning and at the close of the experiment. All written work produced during the period by all of the children was preserved and studied. The typewriter influence was found to be marked and beneficial.

As a direct result of the experiment, the Horace Mann School in New York installed typewriters as a part of its educational facilities. In this school and during the experiment it was noted that the typewriter stimulated the interest of the children in all written work thus eliminating the necessity to impose force to hold them to their tasks. No holding up of hands was required—each child went quietly to the teacher with his problem. A buzz of happy activity similar to a well ordered business office replaced the ordinary repressed silence. The typewriter had brought self-imposed discipline resulting from the pleasure of the work and satisfaction of accomplishment.

In the main, this experiment proved that the use of the typewriter in elementary school work helped the children not only to spell and write the words which gave permanence to their thoughts but also stimulated a greater interest and induced more progress in other studies. Its use resulted in better discipline, more orderly work, greater self-confidence and superior habits of concentration. Incidentally, it has opened a broad field for the sale of new typewriters.

Descendants of the Typewriter

After the typewriter had been introduced in practically all countries of the world and the task of writing out bills, statements and statistical forms became more burdensome, the question began to be asked, "If we have typewritten letters why not typewritten statements, vouchers and statistical forms of every kind?" After the question had been asked more and more frequently the typewriter builders began to answer it. First the Gorin Decimal Tabulator, named after the inventor, was placed as an attachment on the Remington Typewriter in 1898. It wrote figures in columns anywhere on the page with the same speed as ordinary typewriting returning the carriage each time to the proper

ALIGNMENT—one of the most important operations in typewriter manufacture.

point in each column where the next line of figures began.

Just prior to the advent of the decimal tabulator, other minds stimulated by Sholes' typewriter invention as a clerical labor saver, had produced a workable adding machine which piled up figures and totaled them accurately on metal faces. The typewriter lacked the tabulator; the adding machine the printing mechanism. One idea leading to another brought within the span of a few years in sequence, the tabulating typewriter, the adding typewriter and the typewriter-accounting or bookkeeping machine. Most prominent among these typewriter offspring was the Elliott-Fisher Bookkeeping and Billing Machine built with a flat writing bed or platen; the Remington which introduced automatic subtraction and the Underwood which was the first to operate electrically. Other refinements have been added more recently, notably cross adding and the error proofing mechanism.

Thus did the accounting machines and the personal or portable writing machines combine with the office typewriters to make man free from pen slavery; to emancipate women from the triple economic grooves—housekeeping, dressmaking and school teaching—in which society had held her for centuries. Once freed of these social shackles to enter business as a stenographer, bookkeeper or machine operator, the whole field of business pursuits, as well as the professions, became the fit prey for those who had the energy and daring to pit their brains against men for greater rewards of money, service and satisfaction. If there are angels, we suspect Sholes is a satisfied one as he looks down on the millions of berets seen today between 8 and 9 A. M. on Main Street—reflects on the "toppers" of the 70's.

EDITOR'S NOTE. *The foregoing completes the general story of the typewriter and its offspring. The remainder of Part I points out the high spots in the individual progress of three corporations, two of which found Connecticut a good home the year round, while the other merits a place in this story because it was the typewriter pioneer and one of its subsidiaries was originally organized in the state and still remains here as an important industrial establishment.*

Remington Rand, Inc.

The story of Remington Rand, Inc., told here because of the reasons mentioned in the foregoing editor's note, is the recent modern outgrowth of a large number of companies, which together supply practically every office appliance need of modern business with two exceptions—the dictating machine and the meter mail machine, both of which will be mentioned later in this article. All of these companies which were destined to become members of a happy family—the largest in the office appliance field, were recognized successes in their own specialized branches before January 25, 1927, the date Remington Rand, Inc., was established as a Delaware corporation with home offices at 465 Washington St., Buffalo, N. Y.

The granddaddy of the Remington Rand family was E. Remington & Sons which fathered the first typewriter and established March 1, 1873, the Remington Typewriter Co. With the organization of the Union Typewriter Co., March 29, 1893, the following companies were merged with Remington: American Writing Machine Co., organized in 1880; Densmore Typewriter Co., organized in 1891; Yost Writing Machine Co., organized in 1886; and the Smith-Premier Typewriter Co., organized in 1889. Later additions to Remington were the Monarch Typewriter Co., in 1912; the Wahl Adding Mechanism in 1907—the beginning of Remington hand and electrically operated accounting machines; and the Noiseless Typewriter Co. in 1924. Others in the family of companies absorbed by Remington Rand, Inc., include the Dalton Adding Machine Co., Baker-Vawter Co., Kalamazoo Loose-Leaf Binder Co., The Safe-Cabinet Co., Powers Accounting Machine Corp., Library Bureau, Index Visible, Inc., American Kardex Co., The Rand Co. and several smaller subsidiary companies.

Key company of the group which formed the nucleus for subsequent mergers to form Rand Kardex Bureau and which eventuated in Remington Rand, Inc., was American Kardex Co., formed by James H. Rand, Jr., at Tonawanda, N. Y., in 1915, to make the world's leading visible record equipment—Kardex. Previously in 1898 Mr. Rand, Sr., had formed the Rand Co. to produce ledgers, bank supplies and later on visible record systems. Professor Irving Fisher of New Haven, Conn., perfected a system of visible record keeping in 1911 called Index Visible. It has been produced since the early 20's by Remington Rand, Inc.

Items produced by the other unit companies outside the typewriter field are: adding and accounting machines; punched card tabulating equipment; library equipment and supplies; loose-leaf forms and binders; all types of vertical filing equipment; furniture, steel shelving, a complete line of safes and other record protection devices, cabinets, vault doors, carbon paper and typewriter ribbons and miscellaneous items running into the thousands.

Items of production with which we are chiefly concerned in this article are the Noiseless Typewriter produced in Middletown, Conn., and carbon paper and typewriter ribbons made in Bridgeport, Conn.

To produce Remington Rand's complete lines, factories in 12 U. S. cities are utilized, two of which are located in Middletown and Bridgeport, Conn. Foreign plants are located in Canada, England, Saar Valley, Germany, France and India.

The Noiseless typewriter of today, made by a company of the same name, is the outgrowth of an invention of Wellington P. Kidder who worked under the patronage of Hon. C. C. Colby, of Montreal, from 1896 until 1915 when the first successful model was placed on the market for the first time. Both Colby and Kidder had been previously associated with each other in the building of typewriters, the latter also being well known as an inventor and manufacturer of printing presses. The development work was slow, tedious and cost over $500 thousand in the first 12 years. The basic idea developed by Kidder was pressure printing through the use of cam and toggle action to obtain thrust

motion of the type bar. Machines were first placed on the market in 1909 but so numerous were the imperfections discovered in actual use that it was found necessary to abandon the cam action entirely bringing the project to a standstill.

As if by special dispensation of St. Valentine on his day in 1913, N. H. Anderson, development engineer of the company, while seated in a comfortable chair in a hotel lobby, was seized with the idea which was to make the machine a success. Immediately he went to the plant and sketched the double toggle joint which is still incorporated in the action of the Standard Noiseless Typewriter. Then followed reorganization and the new machines were placed on the market in 1915. In 1917 a new and improved model was designed by G. G. Going and placed on the market. It was even more successful than the 1915 model. Shortly after Remington had acquired the Noiseless Typewriter Co., it brought out the No. 6 Noiseless—the first with a standard keyboard. Portable and desk model Noiseless machines have been added to round out the line as well as the New No. 10 Standard Model now being produced in Middletown and recognized as the best Noiseless model ever introduced and one of the finest in the typewriter field.

In Bridgeport, Conn., 141 skilled workers produce for Remington Rand 98 million sheets of carbon paper and 4 million 6 thousand typewriter ribbons annually. The plant was built and began operations in 1900, just 3 years after the industry was first organized.

Materials to produce these twin "Remtico" products are gathered from all parts of the world. Processes are scientifically prepared and constantly analyzed in the laboratory. Special machines do the work of turning tissue paper, wax, oils and ink into carbon paper; cotton cloth, gelatin and ink into typewriter ribbons. Automatic spoolers, gauges, cutting machines and the nimble fingers of many girls complete the job of final preparation for the market.

Present officers of the company are: James H. Rand, Jr., President of the Board and President; Benjamin L. Winchell, Chairman of the Executive Committee; Russell E. Benner, Vice President; Wm. H. Brown, Vice-President and Comptroller; Richard Drechsler, Vice-President; Harry Landsiedel, Vice-President; Clinton F. Price, Vice-President, Chairman of General Sales Committee; John A. Zellers, Vice-President; Stanley M. Knapp, Treasurer; John A. W. Simson, Secretary and Attorney; Edward D. Taylor, Assistant Secretary; Frederick W. Parker, Assistant Secretary and Assistant Treasurer.

Mr. Russell E. Benner one time factory manager of the Noiseless Typewriter plant in Middletown is the vice-president charged with manufacturing, equipment and service for the betterment of the product. George H. Howland is factory manager in charge of manufacturing at the Noiseless plant in Middletown.

Underwood Elliott Fisher Co.

Underwood Elliott Fisher Co. is the outgrowth of mergers and one amalgamation. Starting from original form this company has within its fold the accumulated knowledge and products of the Underwood Typewriter Co., the Elliott Book Typewriter Co., the Hatch Co., the Fisher Book Typewriter Co., and the Sundstrand Corporation. In the span of years between 1891 and 1926 the last four companies were combined in sequence to create the Elliott Fisher Co. with home offices in New York. The next year (1927) the Elliott Fisher Co. was merged with the Underwood Typewriter Co., of Hartford and Bridgeport, Connecticut, with executive offices in New York.

HARD at work without operators. This battery of manual accounting machines is exercised at a rapid speed for 45 minutes to uncover possible hidden defects.

The segments of this truly Connecticut company started to form when Craword Elliott of Centralia, Illinois, and Robert J. Fischer of Athens, Tenn., built and exhibited in 1891, two different models of flat platen writing machines that would type in bound volumes. Shortly, it was discovered that one machine was especially adaptable to recording in bound books while the other found its rightful place as a billing machine. Each started his own company in Brooklyn, N. Y., and Athens, Tenn., removing soon afterward to Harrisburg, Pa., and Cleveland, Ohio. Within a few years Elliott's company had combined with the Hatch Co. and in 1903 with the Fisher Co. to form the Elliott Fisher Co. at Harrisburg, Pa. It was in this year that the new combine placed an adding device on the flat platen writing machine, exhibited at the St. Louis exposition in 1904. High spots of the subsequent Elliott developments were: machine which would distribute totals, adding in 5 different columns; combination adding, writing and computing machine that would post in a loose leaf ledger without removing the sheets from the binder or the binder from the machine; Fisher Model T, a visible writing machine with light touch and a new foot control drop platen which made insertion, register and removal easy and rapid; Elliott Fisher Double Barrel Automatic feed machine which would handle different sets of full width, continu-

ous-length forms, set up side-by-side; and the Automatic Electric Machine in which all operations except depressing the keys were done electrically.

The simplified adding machine which completes the Underwood Elliott Fisher line with the exception of typewriters, was originally designed by the Sundstrand brothers, David and Oscar. After six years of experimenting they announced their 10 key Sundstrand machine in which each digit was represented by only one key. Expanding from a production of 15 machines the first year, thousands of refined adding and new Underwood Sundstrand Accounting machines are now checked out of production lines annually at the Bridgeport plant into business offices both in the U. S. and abroad. Precision in the manufacture of both Underwood Sundstrand and Elliott Fisher adding and accounting machines exceeds that of clock making and much watch making. In the Bridgeport plant many tolerances are as low as .0003 of an inch and should they exceed that amount in certain applications, they would not fit into the small space allotted in the finished product. In the production of these machines at Bridgeport 11,000 different parts and 120,000 separate operations are required.

The inventive mind of Franz X. Wagner and the purse of John T. Underwood combined in 1895 to produce the first visible type bar typewriter, christened Underwood. The first machines were produced in a small building in lower New York while offices were quartered at 241 Broadway. Three years later it became necessary to move to a larger plant which had been acquired in Bayonne, N. J. Within 3 more years the production capacity of the Bayonne plant was taxed, and upon recommendation of Mr. Charles D. Rice, then superintendent, the plant was moved to Hartford in 1901. (More about Mr. Rice in second paragraph following.)

Improvements and general public acceptance of the visible writing machine enabled the Underwood company to increase its sales 17 times during its first 12 years in Hartford. So great did the demand become for visible writers because of their adaptability to a wider variety of uses that the company gradually increased the number of carriage widths until it now offers seven different widths, the widest being 26", which will accommodate statements or statistical writing on paper of any width ever used in business.

The same engineering skill which was responsible for the constant refinements in Underwood visible writers also designed and supervised the building of many special machines. Chief of these inventive engineers was Mr. Charles D. Rice, who was formerly chief engineer of the Pope Manufacturing Company, bicycle builders of Hartford. He accepted the position of superintendent of the Underwood Typewriter Company at Bayonne, N. J., and after a few weeks' experience, found it necessary to seek a better labor field. Knowing that sufficient skilled help and adequate manufacturing facilities were available in Hartford, he persuaded the officers of the company to move to one of the vacated bicycle factories there the following June. Aside from aiding in the improvement of the product, Mr. Rice was responsible for the development and introduction of a large number of single purpose machines which improved the quality and reduced manufacturing costs; also for the planning and supervision of the many extensions which have been added to the original building.

Unit construction, permitting the removal of principal group assemblies separately without disturbing others, has been adopted by Underwood engineers. It facilitates the work of the service departments thus reducing repair costs. Because of it, experts are able to disassemble more than half of the machine in 3 minutes.

As early as 1904, Underwood started development work on its computing or bookkeeping machine which was during the formative years of Fisher and Elliott machines of a similar nature, destined later to join the Underwood family. Eight years later they were made sufficiently practical to market in quantity, making it necessary to build a new plant for their construction.

In 1916 development of the Underwood Portable Machine was started and finally made ready for the market in 1919. To produce it under proper conditions, a plant was purchased in Bridgeport, where it was manufactured until 1932 when it was transferred back to Hartford under a re-arrangement plan of the Underwood Elliott Fisher factories.

In this big Connecticut family of caterers to world business there are over 5000 persons housed in two large plants in Bridgeport and Hartford. They handle over 1,300,000 parts daily in the manufacture of standard typewriters alone and hundreds of thousands more in the production of other units in a widely diversified line of adding, billing and accounting machines. All foreign language types and professional characters as well as practically all type styles are available on Underwood typewriters. The Supply Division furnishes typewriter ribbons, carbon paper and other supplies from the company's subsidiary plant, the Neidick Process Co., at Burlington, N. J. The entire production finds its way to the consumer through more than two hundred main branch offices and sub-branches in the United States and others located in the larger business centers of all foreign countries. Present officers of the company are: P. D. Wagoner, Pres.; C. R. Strohm, Assistant to the Pres.; M. S. Eylar, Vice-Pres.; L. E. Lentz, Vice-Pres. in charge of Engineering, Manufacturing, and Service; Charles D. Rice, Vice-Pres.; C. S. Duncan, Sec. and Treas.; E. R. Baines, Comptroller; F. F. Wright, Gen. Sales Manager. The Hartford plant is in charge of G. W. Campbell and his assistant, W. C. Goodale. Both men are veterans of the organization. F. U. Conard is Works Mgr. at Bridgeport.

Royal Typewriter Co.

The typewriter bug was in the air during the 1890's and early 1900's and two other inventive minds, not previously mentioned in our story, were bitten by it. They were Edward B. Hess and Lewis C. Myers who initiated and guided the first mechanical developments of the now successful Royal

typewriter. Mr. Hess was the original and leading designer and experimenter, later being joined by Mr. Myers.

Thomas Fortune Ryan was so taken with the profit possibilities of the new and improved machine which Hess demonstrated to him that he furnished the money to begin their manufacture and sale. That was the beginning of the Royal Typewriter Co. which started operations in a small building in Brooklyn, N. Y., where two floors and a basement were used. Two years later Royal shared Underwood's previous dilemma of being in crowded quarters and like the older company moved to Hartford, Conn., where skilled mechanics were readily available. Sufficient land was bought to permit of future expansion and a new and modern plant erected

Mr. Hess' ideas must have been good to interest Mr. Ryan, a shrewd financier and market operator, when the typewriter field was at that time considered overcrowded. But like in practically all lines of business there was apparently room for one more product with real merit when teamed up with a progressive sales organization. These new principles of typewriter construction which made for easier operation included a pull action type bar, an escapement which contacted against a roller instead of sliding against a point and a shielding arrangement to shut out dust from the bearings. The typewriter itself, a small semi-portable machine, was much lower and flatter than the office models of the other companies. With these points of merit the Royal emerged from a field dominated by large companies and overcrowded by small struggling ones to become one of the "big four" in the business (Underwood, Royal, Remington and L. C. Smith—the first two wholly Connecticut companies with the third operating its large Noiseless factory in the state).

In 1911 Royal improved its No. 5 model and in 1914 introduced its No. 10, a large office type machine, which gave other typewriter companies their first serious competition. Chief new features in this machine were improved accelerating type bar action, increased visibility, more complete dust shielding, a form of adjustable key tension which would permit the operator to adjust the key action to her touch.

So well was this machine built in 1914 that subsequent years of use in thousands of offices have failed to show up any grave weaknesses in its basic design. It was therefore the real forerunner of today's refined easier writing standard Royal and its numerous other special machines for stencil cutting, typing copy through carbon paper for photo offset reproduction and wide carriage segment shift machines for tabulating and other statistical listing. The segment shift principle was a development of Royal engineers in the late 20's as a result of wide-spread dissatisfaction over the difficulty of shifting wide carriage machines to print capital letters. The former shift principle involved lifting the carriage; the Royal segment shift required the lifting of the type bar mechanism only. It worked out so satisfactorily on the wider carriage machines that it has since been adopted on the standard Royal Typewriter with the additional refinement of quiet metal stops.

In July this year Royal refined still further the basic typewriter of 1914. This new Royal "H" model is more graceful in appearance, has nearly 100% coverage of working parts, a visible touch control (refinement from the 1914 model), a new automatic paper lock, non-glare keys, longer line space lever, new scales to aid in centering and aligning type and other quietizing features.

During the latter part of 1926 Royal executives got their heads together to figure out a plan to stimulate typewriter sales. They saw fierce competition in the business field that did not seem to warrant the introduction of a new standard typewriter. Then they looked at the potential market for portable typewriters in 15 million American homes and in thousands of schools and colleges. That picture was in focus despite the fact that three strong competitors were firmly entrenched in the field. That their decision to build a portable machine was correct has been proved by the large sale and popularity of Royal portable models.

Taking a leaf of wisdom from the automobile manufacturers' merchandising strategy, Royal designed in graceful sweeping lines, topped off with all colors of the rainbow in pleasing combinations from quiet duotones to brilliant greens and blues. This sales appeal strategy increased Royal portable sales twenty-fold in four years. Three models range from $33.50 to $60.

An idea of Royal's annual production may be gained by adding up on your Sundstrand or Remington 80 tons of nickel, silver, brass and aluminum; 800 tons of screw stock; 1700 tons of strip steel; 1400 tons of iron castings; 17000 gallons of enamel and lacquer; 38,000 pounds of spring wire; 50,000 square feet of glass (weigh a foot first), and 180,000 pounds of rubber. Weigh a Royal standard typewriter and a portable, use your own formula and you will probably come out within 20,000 of the correct answer to Royal's units produced in a year. Over 3,000 people work this material with the aid of 40,000 tools, gauges and other instruments and 6,000 machines to produce Royal machines with 155 different keyboards and 46 type styles. Each typewriter has 1700 parts and 5,000 separate operations are required to put it together.

The Hartford plant is in charge of Vice Presiden C. B. Cook, who has been associated with the company since it first moved to Hartford in 1908. Most of the factory executives and foremen are veteran typewriter men, every member of the foremen's club having 14 or more years' experience with the company. One third of the employees are skilled workmen. Training schools are conducted for all departments in order to maintain high standards so necessary in producing an intricate typewriter (mechanism which will stand the strain of 5 or more years of hard daily usage).

Distribution of Royal typewriters in the U. S. and Canada is done through an intricate system of branch offices and independent dealers which covers every town and city of 5,000 people and over. Six hundred salesmen working from 70 offices form the branch organization. Twenty-one hundred inde-

pendent dealers scattered throughout every community in the U. S. distribute the entire output of Royal Portables and likewise aid in the distribution of the standard machines and typewriter accessories and supplies.

Abroad, Royal sales and service is carried on by 6500 men and women operating through 110 dealers and 900 sub-dealers in 91 countries of the world, making the Royal machine available to people of every race. 297 keyboards are necessary to supply the needs of many languages.

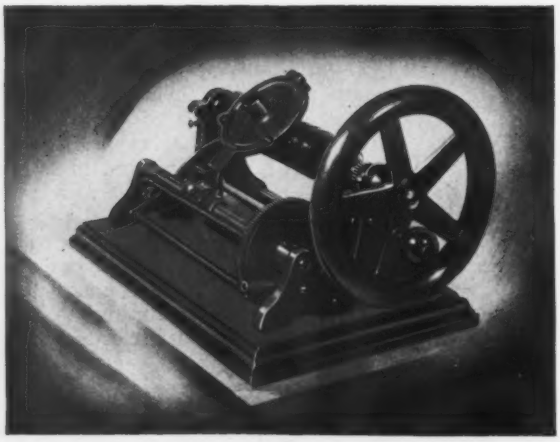
To keep down resistance to this army of salesmen Royal has been a staunch advocate of advertising and personal merchandising. It employs many national magazines and the radio to carry its sales messages into the homes of prospective users or purchasers of its machine.

The great majority of Royal executives have grown up with the company through the ranks. E. C. Faustmann, Royal's President, joined the organization in 1910. A. E. Davis, Treasurer and the Comptroller, W. H. Parks, both came with Royal about 1912. Lewis C. Myers, associated with Mr. Hess, the inventor, from the start, is in charge of the Patent and Experimental department and is largely responsible for the present Royal typewriter. The present General Sales Manager, Mr. M. V. Miller, began in the Hartford office as a salesman in 1913. W. A. Metzger, Manager of the Portable Department began in 1916 as a secretary in the executive office.

Other officials of the company not previously mentioned are: H. H. Vreeland, Chairman, E. B. Hess, Vice President, H. A. Way, Secretary.

Part II
The Dictating Machine

Had the milling crowds at the Philadelphia Exposition in 1876, realized to the full the ultimate developments to come from Dr. Alexander Graham Bell's discovery of the principles that permitted transmission of the human voice over long distances, Mr. Bell would have been honored by the presence of not one Emperor, as he was, but a half dozen and his prize money (Volta prize of $10 thousand from France) might have leaped to many times the then tidy sum of $10 thousand. That year, when the telephone was patented and exhibited for the first time, marks the beginning of many experiments which have resulted directly in the production of the phonograph to record both musical notes and ordinary business conversation, the perfected system of national and overseas voice communication and the Bell Telephone Laboratories which have been responsible for discoveries of vital importance to all forms of communication including television.



THE first practical dictating and talking machine made by Professors Bell and Tainter in 1888, under the supervision of Dr. Alexander Graham Bell, inventor of the telephone.

With the $10 thousand dollars, Dr. Bell established in Washington with Chichester A. Bell, his cousin, and Charles Sumner Tainter, the Volta Laboratory Association, to develop a product to record and reproduce sound. Chichester Bell was a chemist, Professor Tainter a scientist and model builder.

Thomas A. Edison invented in the following year (1877) the first machine (the so-called tinfoil machine) for recording and reproducing sound. Considered a scientific novelty, never practical, it remained for the members of the Volta Association to develop the first practical talking machine, patented in 1885 and known as the Bell and Tainter phonograph. Edison railed against the patent office —against Bell and Tainter in tones and language difficult to associate with the kindly, mellow face of the later "wizard of Orange". His voice was picked up by the press making heated controversy for months around stoves in cross-road stores, American evening firesides, and produced gossip at afternoon "quiltings". Despite the discussion, the Bell and Tainter patents were recognized as basic and under them the phonograph industry operated until their expiration date in 1902.

It was Dr. Edward D. Easton, a public stenographer of Washington, D. C., who first recognized the tremendous advantages of the Bell and Tainter machine for dictating purposes. He organized and became the first president of the American Graphophone Co., formed in Washington in 1887, to manufacture and introduce to the public the graphophone and its appliances. The patents under which the company operated had previously been taken over from the Volta Association by the Volta Graphophone Co., organized as the parent company after the patents were granted. The Volta Company had a contract with the Professors Tainter and Bell and Dr. Bell by which it acquired not only all of their inventions relating to sound recording and reproducing machines, but also all inventions and improvements they might make in the same lines in the future. To aid in the developments of these inventions the Volta Company had established a laboratory.

Like the pioneers of Underwood and Royal typewriters, the American Graphophone executives looked with favor upon a Connecticut location and accordingly chose to rent, in 1888, factory space in Bridgeport located on the same spot (plot

THE Dictaphone dictating machine. What? no stenographer! Sorry, sir, she's busy at her desk below.

bounded by Hancock Ave., Railroad Ave., Howard Ave., and Cherry St.) now occupied by its lineal descendant, the Dictaphone Corporation. Contrary to the mass conception that the then "graphophone" was first used for recording and reproducing musical notes, it was first put to practical use as a substitute for shorthand notes—a dictating machine. A brief preface in an early brochure goes on to explain:

The following colloquy between Mr. Andrew Devine of the Official Corps of Reporters, U. S. House of Representatives and Mr. E. V. Murphy of the Official Corps of Reporters U. S. Senate, which was carried on at a rate of speed quite above that of ordinary conversation, was recorded on the Graphophone and faithfully reproduced by a lady typewriter operator, April 4, 1887.

So from the start, the graphophone—today's dictating and transcribing machines—became an ally of business executives, a speeder of the day's business and a boon to the typewriter operator who detests shorthand. About two years after the start of manufacture, the machines began to be used for reproduction of music. Both types were produced until 1906, one known as the amusement machine and the other as the commercial graphophone. In 1906 and 1907, Columbia Phonograph Co., which had taken over the American Graphophone Co., produced the first machine known by the afterwards copyrighted name of Dictaphone. Applied to machines for commercial use it was unmistakably distinguishing between the "music box" and the "dictator". Until Jan. 1, 1923, when a group of farsighted business men headed by Richard Swartout, bought the Dictaphone business, it was operated as a part of Columbia Phonograph Co.

The wisdom of these men has been proved during the past decade, for in this period the phonograph business has been practically killed by the radio while thousands of stenographers and typists have either been forced, or through their own wisdom, learned to type speedily from the ever-increas ing reproducing Dictaphone units. To the executive who is thrilled with the voice or benumbed by the smile and fire that lurks under the slowly raised eyelashes of his secretary, the Dictaphone is a joy killer. To the one who starts to use one, it may be like the first olive, but to him who persists for a short time in its use, it becomes a handy friend, a saver of odd moments and a boon to him who desires to capture a brilliant idea or to preserve any thought which he might ordinarily delay recording, at the risk of forgetting, until the next morning's dictation.

With the handy and compact desk model or one of the many modernly designed stand model Dictaphones, an executive is never at a loose end waiting for his secretary. Day or night through lunch hours or illness of a shorthand secretary, his mechanical servant will record his thoughts unerringly. Both his time and that of his secretary is made more productive by the use of it.

First of these grandsires of the Dictaphone were operated by hand. Then the influence of the sewing machine was evidenced by the attachment of a treadle similar to that used in operating the first crude typewriter. Some were even operated by a water motor. Then came the electric motor which eliminated all other forms of motive power. The first machines performed three operations—recording, reproduction and shaving—all in one unit. One by one, starting with the shaver, each of these three performances was accomplished by a separate unit.

The manufacturing operations in producing the Dictaphone proper are not sufficiently different from the ordinary routine of production performance to warrant description. But the production of cylinders and sapphires which contact the cylinders are of interest.

Cylinders are made from a special wax by an exacting formula and prepared in special glass lined kettles. Particular attention is paid to the elimination of even microscopic impurities. Cleanliness is an absolute necessity in order to insure a minimum of surface noises which might mask the finer inflections of the dictator's voice. When the cooking or melting operation is complete, the wax is poured into moulds by hand and allowed to harden partially. It is then forced from the mold, the taper core unscrewed, and the upper end of

The Dictaphone transcribing machine sounding the dictation of today, yesterday or last week.

the cylinder cut off to remove froth and air bubbles resulting from pouring. The rough cast cylinders are seasoned for a week at constant temperature, machined all over, the bore reamed to size and the end marking stamped into the wax with a heated die. Each individual cylinder is then inspected for size of bore, outside diameter, flaws on surface of cylinder, and if perfect, is placed in a flannel lined carton and packed in quantities for shipment. To insure against the human frailty of "sloughing" occasionally, a bonus is paid to inspectors based on the number of cylinders they reject. Each perfect cylinder, with proper regrinding, is supposed to provide the dictator with 100 possible dictating surfaces.

Sapphires are used on all three Dictaphone units. In the dictator they act as the sending apparatus, reproducing the human voice by cutting fine lines on the surface of the wax cylinders. In the transcriber, they pick up these voice messages by passing over the grooves. A sapphire knife in the shaver removes the grooves producing a mirror-like surface for the next dictation. Because sapphires are next to diamonds in hardness they must be cut with diamond bortz. Diamond bortz consists of crude diamonds whose sizes, shapes or colors render them unsuitable for use as jewels. The bortz is first crushed into a mortar then graded for size by allowing it to settle in a can of benzine. After a predetermined time, the benzine containing the smaller diamond particles is decanted into another vessel and again allowed to settle. Six different grades are collected in this manner and the proper grade placed on a lap and used as a cutting tool to shape the sapphire. Depending on the work they are intended to do, the laps may be of various shapes and materials such as copper wire, steel discs or boxwood discs. The bortz becomes imbedded in the softer lap and the sharp projecting edges cut the surface of the sapphire.

MODERN style floor model Dictaphones open and closed.

The recording and reproducing stylus are both lapped to cylindrical form about .020" in diameter. The recording stylus is carefully polished and a hole lapped in the end. It is then concaved until a fine cutting edge is obtained.

The reproducing stylus is formed to a ball end and highly polished to slide over the wax without destroying the microscopic variations in the tone groove.

The shaver knife is lapped to a slightly curved knife edge with a correct rake and clearance to leave the mirror surface as it passes over the wax cylinder.

The Dictaphone is produced, sold and serviced throughout the U. S. by a large organization either working direct for the Dictaphone Corporation or under its supervision as in the case of dealer sales and service men. The U. S. branch organization numbers 25 main branches, 56 sub-branches and 95 dealers and service agents. Everywhere factory trained personnel is available to give standardized service. Dictaphone is also sold and serviced in 62 foreign countries.

Present officials of Dictaphone Corporation with headquarters in the Graybar Building, New York, N. Y., are: Richard H. Swartout, Chairman; L. C. Stowell, President; Merrill B. Sands, Vice President; and J. L. McIntosh, Secretary and Treasurer. Theodore H. Beard is supervising engineer in charge of production at the company's plant in Bridgeport, Conn.

THE Dictaphone shaving unit that will produce 99 new coats or dictating surfaces on wax records according to the word of its makers.

Part III
The Postage Meter

Throughout parts I and II of our story we have dealt with various methods of recording thought and the inventions which have played a most important part in releasing man almost entirely from

(Continued on page 26)

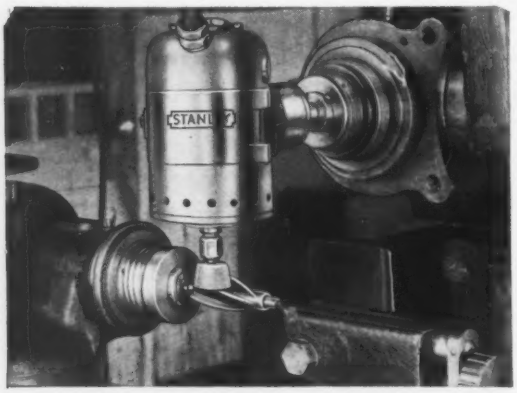
Mac's Philosophy

SOMEBODY said something about consistency being a jewel. He must have known some political promisers or econoguessers.

CLIFF KNIGHT
"FORGET THE MEN—AND THE ISSUE—JUST PULL THE LEVER"
POLITICS
① HIGHER WAGES
② RAISE COST OF BUILDING MATERIALS
③ "BUILD AND REMODEL NOW"
④ GET TOGETHER AND RAISE PRICES
⑤ RAISE WAGES BEYOND —1929 LEVEL—
⑥ "BUY NOW!"
⑦ PAY HIGHER THAN THE PREVAILING RATE TO RELIEF WORKERS—AND INCREASE REGULAR EMPLOYMENT
⑧ FORGET STATE RIGHTS.
⑨ LET THE FEDERAL GOVERNMENT DO IT, BUT MAKE THE STATES PAY
CAMPAIGN PROMISES
"WE SHOULDN'T PAY ATTENTION TO PROMISES THAT CAN'T BE KEPT—VOTE FOR THE MAN WHOSE RECORD IS GOOD!"
LABOR
AGRICULTURE
MANUFACTURER
STOCK HOLDER
COMMERCE

NEWS FORUM

New Tool by Stanley. The Stanley Electric Tool Company of New Britain, Connecticut, has recently started to market a utility tool room grinder, No. 585, which has innumerable uses. This handy tool may be mounted on a lathe, miller or shaper or on a special Stanley Bench Stand or on a variety of abrasive wheels, either straight or mounted. It may be used to grind the openings in all kinds of dies and jigs and to grind keyways and slots and for other internal and external grinding operations. As a hand tool it may be used to grind machine parts and for roughing off hand grinding on small castings or forgings. With a metal cutting bit, it can be used to machine aluminum patterns, brass templets and for similar work on all nonferrous metals. It is equipped with a ⅜ h. p. Universal motor capable of driving a 1½" x ½" wheel and is furnished complete with motor unit holders, wheels, bit wrenches and lubricant. The grinder, motor and accessories fit neatly into a compact metal carrying case making it easy to store in tool room crib or to carry from job to job.



Utility Tool Room Grinder, a new product of the Stanley Electric Tool Co. of New Britain.

* * *

Beardsley & Wolcott ordered to Reorganize. Almost immediately after the Beardsley & Wolcott business and property, of Waterbury, had been sold early last month by James R. Sheldon, original receiver for the firm, to the Waterbury Buckle Company for a total outlay of $61,000 upon order of Judge Frederick M. Peasley of the Superior Court, a restraining order from Judge Carroll C. Hincks of the U. S. District Court, arrived to keep the receivers from selling the plant. The order was said to have been issued because a petition had been filed in the Federal Court to permit the reorganization of the company under the new Federal Bankruptcy Law. Lyall Brown of Boston, appointed receiver by Federal Judge Hincks of New Haven, clashed with James R. Sheldon, acting on orders of Judge Peasley, for control of the plant. A subsequent hearing finally resulted in an order by Federal Judge Hincks asking the Federal Trustees to submit by August 29 a plan for reorganizing the Beardsley & Wolcott Company. The motion for the dismissal of the petition for reorganization, as entered by James R. Sheldon, was denied by the Court, but the petitions to intervene filed by the Bank of Manhattan, the Guaranty Trust of New York and R. F. Giggs Company, creditors of the Waterbury concern, were granted.

Papers from the RFC agreeing to a mortgage loan of $60,000 on the company's plant and machinery were received on August 9 by Lyall Brown, one of the three federal trustees, said to be managing the plant.

* * *

Loss for United Aircraft. A consolidated net loss of $1,267,536.06 for the quarter ending June 30, 1934, or a total consolidated net loss for the first six months of this year of $1,978,925.81 was reported by the United Aircraft & Transport Corporation. Loss for the transport companies accounted for the greatest amount, $1,508,000, which was largely due to the absence of air mail revenue from the annulment date of airmail contracts on February 19 to the commencement of operations on May 8. The remainder of the loss was largely accounted for by the western manufacturing companies and the extraordinary expenses involved in reorganization.

The eastern manufacturing group, including Sikorsky, Chance Vought, Hamilton Propeller and Pratt & Whitney Aircraft Company showed a net profit of approximately $165,000.

HADFIELD, ROTHWELL, SOULE & COATES

Certified Public Accountants

HARTFORD-CONNECTICUT
TRUST BUILDING
HARTFORD, CONNECTICUT

THE FIRST-STAMFORD NATIONAL
BANK & TRUST CO. BUILDING
STAMFORD, CONNECTICUT

Seth Thomas to Build. A contract for the erection of a new case shop for the Seth Thomas Clock Company of Thomaston was recently awarded to the Torrington Building Company. The new building will be of mill construction, L shaped, approximately 80 feet wide and 380 feet long adjoining the main building at the rear. Cost of the construction together with equipment and machinery is said to approximate $100,000. Preliminary work has already been started and completion of the plant is expected by January 1.

* * *

Meriden Blaze Threatens City. A fire of undetermined origin which destroyed the Lyon and Billard Company, lumber and coal yards, on Sunday, August 5, resulted in total damages approximating $250,000 causing one death and leaving four families homeless. A high wind which quickly spread the flames through the eleven buildings in the lumber yard soon placed the fire beyond control of local companies, threatened the Bradley & Hubbard Mfg. plant nearby and in fact the entire downtown district. Within an hour, homes on five different streets were burning and a general call for assistance was broadcast. Fire departments from nearby towns aided in extinguishing the flames.

* * *

Veeder-Root Shows Large Profit Increase. Veeder-Root Incorporated showed a net profit from operations during the first 24 weeks in 1934 of $158,052, or $2.10 a share. This profit represents an increase of $145,409 over that earned for the same period of last year. Net worth of the corporation increased $127,282 after payment of $52,500 in dividends.

* * *

Best July in History. J. B. Howard, treasurer of Curtis 1000 Inc., envelope manufacturers and distributors, reports that the Hartford division of the company experienced its best July sales on record and that its business has shown such an encouraging increase that the company contemplates a rather extensive expansion of facilities in the fall. At the same time he announced the payment in August of the regular dividend of $1.75 on the company's preferred stock plus a 75 cents per share accrued dividend.

* * *

New Company in Rockfall Plant. The Russell Manufacturing Company of Middletown has recently rented its asbestos manufacturing plant at Station 26, Rockfall, to the Southern Asbestos Corporation. The company will operate the plant in Rockfall in conjunction with two others located in Charlotte, N. C., and Trenton, N. J. W. L. Truesdell, for the past fifteen years associated with the Rockfall plant in the manufacture of asbestos, brake linings and clutch facings, is not connected with either the new owners or with the Russell Manufacturing Company and is reported to be in retirement at his home in Middlefield.

* * *

Fire Shuts Bigelow-Sanford Plant. Fire caused by a burned generator was responsible for the closing of a large portion of the Bigelow-Sanford Carpet Company plant in Thompsonville for several days during the first week in August. Although damages to the plant caused by the fire were not great, the delay in manufacturing operations was serious.

* * *

Death of Veteran Foreman. George H. Tansley, 73, mechanical engineer and foreman of the experimental and development department, machine gun division, of Colt's Patent Fire Arms Manufacturing Company, died at his home in Hartford on August 4 after serving the company 32 years. He leaves his wife, Georgianna (Hudson) Tansley; one daughter, Mrs. Charles Cook of Hartford; two

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sisters, Mrs. Mary Houghton and Mrs. Eliza A. Sherwood, both of Springfield, Massachusetts. He was buried Monday, August 6, in the Rose Hill Memorial Park, Rocky Hill.

* * *

S-42 Makes Record. The S 42 of the Pan American Airways, largest flying boat in the United States and recently completed by the Sikorsky Aviation Corporation of Stratford, Conn., has maintained a speed of 157.32 over a 1242.8 mile course in a test flight. The flight was a test of specifications calling for transport for the equivalent of 32 passengers, 2,000 pounds of air mail and express and a crew of five, non-stop for 1220 miles with an average speed of 145 miles an hour. The plane, powered with four Pratt & Whitney engines, set eight new world's records during the test.

* * *

New Angler's Tool. The H. C. Cook Company of Ansonia, Conn., manufacturers of sheet metal specialties, finger nail clippers and stationers' hardware, has recently placed on the market a new and practical tool called "Pal" Angler's Clip, which should be welcomed by fishermen everywhere. It is a neat, compact and efficient tool made of hard and tempered steel, and as shown by the accompanying illustration will accomplish the following:

The "Pal" Angler Clip for fishermen, a new product of the H. C. Cook Co., Ansonia, Conn.

1. will clean and remove leaders from the eyes of flies; 2. DISGORGER—for "backing out" hooks which are hard to reach; 3. CLIP—a hardened and tempered clipper for clipping lines, leaders, finger nails and invaluable for trimming flies and other lure; 4. THONG—with loop for attaching to lapel of fishing coat.

Nickel plated and neatly packed in attractive individual box, it is being marketed through jobbers and dealers, retailing at $1.

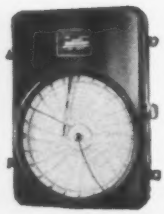
* * *

Distribution Conference. The sixth Boston Conference on Distribution, sponsored by the Retail Trade Board of the Boston Chamber of Commerce in cooperation with Harvard University, Boston University, the Massachusetts Institute of Technology and numerous other educational institutions and other organizations, has been scheduled for September 24 and 25 at Hotel Statler, Boston. The purpose of the conference is to stimulate through an exchange of ideas, constructive thinking about the major problems of distribution and includes as discussion subjects in part, the following: Price Agreement and Price Fixing under NRA —A Review; Price Rigidities and Business Policy; The Trend in Prices; Determining Cost and Price; Merchandising in the New Era of Competition; Labor and Distribution, etc. A few of the prominent speakers are: Hon. Frances Perkins, secretary of labor; Robert Amory, treasurer of the Nashua Mfg. Co.; Roy Dickinson, president of The Printers' Ink Publications; William H. Leffingwell, president of The Taylor Society; Dr. Harry R. Tosdal, professor of marketing, Harvard Graduate School of Business Administration.

The registration fee of $10 includes two luncheons and complete copy of proceedings. Reservations should be made through addressing Daniel Bloomfield, manager, 80 Federal Street, Boston.

* * *

Kelsey Publicity in Time Magazine. The Kelsey Press Company of Meriden, Conn., operators of the Connecticut Type Foundry and manufacturers of printing presses, printing machinery, equipment, paper and cards, and supplies, received some favorable publicity in the July 16, 1934, issue of Time Magazine. It was in connection with a write-up of the 1934 convention of the National Amateur Press Association held in Chicago. It states in substance that nearly all amateur journalists use hand presses, most of which come from the famed 62-year-old Kelsey Press Co. of Meriden, Conn. Prices of outfits used by these journalists range from $15 to $30, the latter being the most popular, printing a 5 by 8.



Recording Thermometer, Model 40M

TRADE MARK

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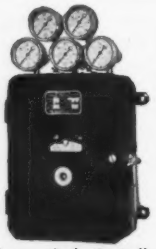
Instruments for Indicating Recording Controlling Since 1889

THE BRISTOL COMPANY

WATERBURY-CONNECTICUT



Process Cycle Controller, Model 6035

DEPARTMENTS

Accounting Hints for Management

Contributed by Hartford Chapter N. A. C. A.

An analysis of the major clauses of approved industrial Codes has revealed that the provision for uniform estimating or cost accounting ranked among the foremost. This fact has a tremendous significance and might well serve as an index regardless of whatever may be the ultimate disposition of the code's program.

There has been too much misapprehension in industries that cost accounting was enshrouded in mysteries. Sometimes the attitude of opposition on the part of executives was based upon an undefined fear of their own failure to comprehend. Although the technique may involve some different procedures, it is nevertheless based upon the fact that the cost of goods produced or sold consists fundamentally of:

(a) The material consumed,
(b) The labor applied to the direct production, and
(c) The incidental expenses involved not specifically for the particular product, but more or less essential to the production of any and all goods, such as space and equipment, power, maintenance, supplies, etc.

Stated in another manner, cost accounting as applied today is simply an expansion of the Profit and Loss account, with more particular attention to factory or production costs. This extension furnishes the management with the facts and figures applied immediately and specifically to given products, sales, or combinations thereof, instead of only aggregate or accumulated costs and results for an entire period.

* * *

Cost of Costing. A few years back the jibe was sometimes made about the "cost of cost accounting". That cost, however, is negligible when matched up with today's "cost of code accounting". The concerted action of industrial leaders will be required to keep down this imposed overhead (burden) within reason by placing restraint upon the ambitious efforts of the code administrative forces. As an example, it is difficult to comprehend the colossal task which has been undertaken in one industry of requiring that a copy of each accepted estimate be filed at Code headquarters upon receipt of a customer's order, to be followed up by a report on certain production data relative to that order upon its completion.

* * *

Cost Accountants Resume Activity. Hartford Chapter, National Association of Cost Accountants will launch its program for the season on Tuesday, September 18th when Allan H. Mogensen of New York will speak on "Can We Continue Motion and Time Studies in Times Like These?" Mr. Mogensen is an industrial consultant and is consulting editor of Factory Management and Maintenance.

Foreign Trade

Export Men Hold Outing. Foreign tariffs, competition, export quotas, and consular invoices were all forgotten as the river boat "Sieve" pulled away from the East Haddam dock at 1:30, Saturday, August 11, bound for "somewhere up the Connecticut" with seven members of the Association's Foreign Trade Committee and two guests on board. It looked like rain, but didn't, the sun scattering the haze early in the afternoon. A stiff breeze blew from the—starboard—no, port—well, anyway it came from some direction and was friendly to everybody and everything but hats, which scurried to the cabin below with the exception of one—à la Mexicano. That hat and its wearer played a large part in the afternoon's docket which included about all the amusing games nine men and a pilot could play while sailing up and down the Connecticut River with a few explorations of coves thrown in. Most important items on docket were: 1. a late but welcome picnic luncheon; 2. a story about a German emigrant; 3. sandwiches and refreshments; 4. serious appreciation of nature's beauty on the port side; 5. a refreshing story of success; 6. the disappearance of nine hard boiled eggs; 7. the story of two men, a line and no fish; 8. did you ever hear the one about the——let it go. The boat's back at the dock and it's near 7:00 o'clock.

The day was topped off with a dinner at the Riverside Hotel with congratulations to Chairman James E. Bryan of the Undine Twine Mills, Inc., Moodus, for staging the outing. In the name of good fellowship it was voted to repeat the docket next year. Adios.

Those who were fortunate enough to attend from the committee were: James E. Byran, chairman; H. F. Beebe, Winchester Repeating Arms Co., New Haven; H. G. Farwell, Raybestos Manhattan, Inc., Bridgeport; Edgar H. Long, Seamless Rubber Company, New Haven; Royal H. Miller, Turner & Seymour Mfg. Company, Torrington; H. G. Reinecke, The Yale & Towne Mfg. Company, Stamford; and J. M. Schaeffer, Waterbury Farrel Foundry & Machine Company, Waterbury. Guests present were V. Weltscheff, Colombian representative, Yale & Towne Mfg. Company, Bogota, Colombia, and L. M. Bingham of the Association's staff.

* * *

Second Export-Import Bank Credit Facilities. As a result of some criticism of the credit facilities provided by the Second Export-Import Bank, an official memorandum has been issued by that organization which attempts to clarify the situation. In substance it states that an important feature of

the bank's credit policy is the opportunity given to its responsible officials to direct operations "for the strategy of our foreign trade most needs its presence and where definite assurance is given of increased business". The Second Bank, in other words, "may be a valuable agency in utilizing the knowledge, now being coordinated by our government, of the exact status of our account with other countries. The ability, therefore, to extend credit where it is advisable to do so, and to withhold it for like reason, thus rests on an agency informed and participating in the foreign trade policy of our government." It states further, "The government thus offers an opportunity for carrying the 'flag' in foreign trade transactions in which private banks are unable to provide accommodations. In exceptional cases this may be done without recourse to the exporter, but there must be cases involving terms and risks outside the ordinary routine of export and import business, that must possess a merit to our trading position in general that shall make the exceptions from this extra risk worthwhile."

Official rates to be charged on these transactions are as follows: minimum charge of 4% for the first year, plus 2% for each additional year. For a three-year transaction this would mean: 4% for the first year; 2% for the second and 2% for the third—making 8% for the total three year period.

* * *

Finland Treaty Effective in August. Ratification of the most-favored-nation treaty of friendship, commerce and consular rights between the United States and Finland have been exchanged and the treaty made effective on August 10.

* * *

Trade Agreements May Be Delayed. According to recent reports from Washington officials, reciprocal trade negotiation activities may slump until November or shortly after election. Reasons given are due to: 1. differences of opinion among experts engaged in the work; 2. uncertainty as to consequences of downward tariff revisions before business materially improves; 3. unforeseen complications with some foreign countries; and, 4. because our foreign trade has shown signs of improvement without the aid of reciprocal trade agreements. While the new tariff act was designed primarily to prevent delay in completing reciprocal trade agreements, it is necessary to take into account the inability of our government to influence any change in the conditions abroad which are now considered chief cause of present delay. Likewise the task of adjusting our fast reorganizing national economy to the exigencies of international trade, has proved to be slower by far than originally contemplated.

Transportation

Not-for-hire Trucks and the Trucking Code. In response to a number of inquiries from manufacturers as to whether it would be possible for them to operate their trucks under the labor provisions of the trucking code, the Association's traffic department addressed the question to the NRA and received from C. L. Dearing, assistant deputy administrator, Transportation Section, NRA, the following letter which says in part:

"So far as I know, there is no precedent for the transfer of jurisdiction of trucking operations from another Code of Fair Competition to the Trucking Code, although we have had petitions requesting exemption from the labor provisions of the Trucking Code—with permission to operate under some other approved code.

"It appears to me that if certain industries desire to operate their 'not-for-hire' vehicles under the Trucking Code rather than under their own Code, the only way in which this might be accomplished is by a petition addressed to their respective Code Authority requesting exemption from their code, and accompanied by a request for permission to operate under the provisions of the Trucking Code."

* * *

Change in ICC Practice Rules. The Secretary of the Interstate Commerce Commission has recently announced that certain Rules of Practice before the Commission have been revised, to become effective September 1, 1934, in order to make them conform to the changes in the Interstate Commerce Act made by the Emergency Railroad Transportation Act, 1933, and by the Communications Act of 1934. All changes are incorporated in a pamphlet entitled "Amendments and Supplements to the Revision of September 1, 1932, of the Rules of Practice before the Commission in Proceedings Under the Interstate Commerce Act and Related Acts, with Approved Forms", and may be secured from the Superintendent of Documents, Government Printing Office.

* * *

New Regulations on Postal Money Orders. Effective August 1, a postal money order paid at an office other than that upon which it is drawn will not be paid in full, but will have deducted from the face value of the money order, an amount equal to the original fee paid at time of issue. Likewise, effective on the same date, all money orders more than 30 days old when presented at a post office, other than the one upon which the order was drawn, cannot be cashed, but must be returned to the purchaser or endorser with instructions that it be exchanged for a new money order at the office of issue and that such renewal will require the payment of a second full money order fee.

The first of these new rulings will make it impossible to endorse money orders and forward to another concern or individual in a city or town other than the one drawn upon, unless the sender believes the convenience sufficient to warrant the payment of the original charges.

* * *

Intercoastal Conference Disbanded. On July 31 the United States Intercoastal Conference dissolved. Contrary to usual expectation, it is not believed that this dissolution will result in instability of

(Continued on page 31)

SERVICES AT YOUR DOOR

An alphabetical list of accessible services recommended to Connecticut Industry readers

HADFIELD, ROTHWELL, SOULE & COATES
Certified Public Accountants
Hartford — Stamford

HENRY KNUST
Certified Public Accountant
Conn. and N. Y.
15 Lewis Street — Hartford

Scovell, Wellington & Co.
ACCOUNTANTS AND AUDITORS
First National Bank Bldg.
New Haven
Offices in Principal Cities

Rates for this space exceptionally low

COAL
T. A. D. JONES & CO., INC.
24 hour service to Connecticut Industries
New Haven — Bridgeport

ENGINEERS—MANAGEMENT
Scovell, Wellington & Co.
First National Bank Bldg.
New Haven
Offices in Principal Cities

ENGINES & MOTORS
WOLVERINE MOTOR WORKS, INC.
DIESEL ELECTRIC SETS
6 Union Ave. — Bridgeport

ENGRAVERS
DOWD, WYLLIE & OLSON
Advertising Art & Photo Engraving
106 Ann St. — Hartford

FENCING
THE JOHN P. SMITH CO.
Distributors for Page fence. Manufacturers of Wire Cloth,
497 State St. — New Haven

FREIGHT FORWARDERS
THE MILTON SNEDEKER CORP.
Foreign Freight Forwarders
44 Whitehall St., New York City

...Query

Readers desiring to purchase merchandise or services not listed here will be given the names of reliable firms upon inquiry to this department.

...Listing

Copy for listing in this department must be received by the 15th of the month for publication in the succeeding month's issue. We reserve the right to refuse any listing.

FREIGHT FORWARDERS
LUNHAM & REEVE, Inc.
Foreign Freight Forwarders
10 Bridge Street — New York

Ask about rates for one or more of these spaces.

INSURANCE
AMERICAN MUTUAL LIABILITY INS. CO.
Workmen's Compensation Ins.
Boston - Bridgeport - Hartford

LEONARD'S GUIDE
Freight, Express and Parcel Post Rates and Routing
The most complete, accurate and *simple* guide published
15 East 26th St. — New York

MILL SUPPLIES
THOMAS TRANT & BRO.
Jobbers—Plumbing, Gas Heating, Water Supplies and Specialists in Mill Supplies
228-232 State St. — Hartford

PRINTERS
THE CASE, LOCKWOOD & BRAINARD CO.
Printers and Binders
Trumbull St., Hartford

RECORDING INSTRUMENTS
THE BRISTOL COMPANY
Recording and Controlling Instruments
Waterbury - Connecticut

TRANSPORTATION
AMERICAN-HAWAIIAN STEAMSHIP CO.
Coast-to-Coast Freight Service
New York — Boston

DOLLAR STEAMSHIP LINES, INC., LTD.
Inter-coastal—Far-East and Mediterranean freight steamer Service
New York — Boston

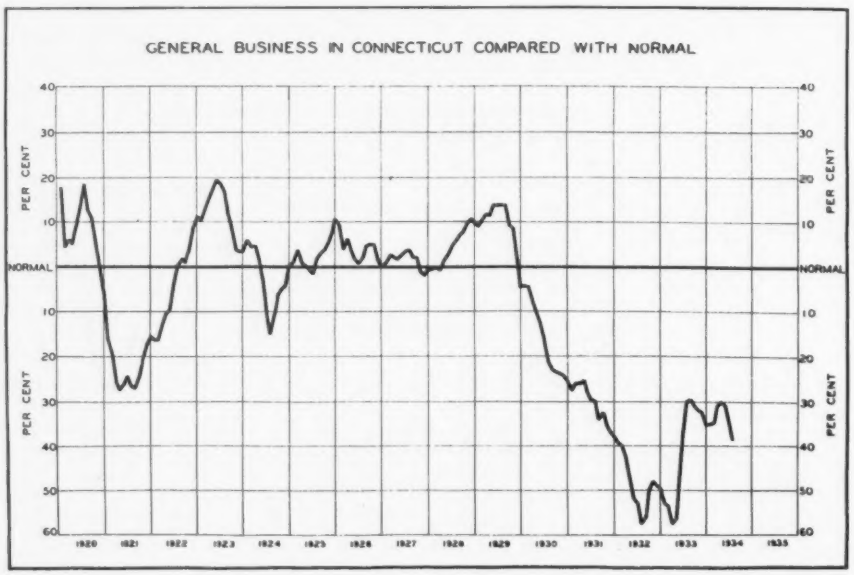
Ask about rates for one or more of these spaces.

BUSINESS PATTERN

General Summary. During July, general business activity in Connecticut declined to 38.7% below the estimated normal compared with 34.4% below in June. The magnitude of the decrease was due in part to an abrupt falling off in steel ingot production which was reduced approximately 50% and which also had its effect on metal tonnage carried by the New Haven road. Activity in Connecticut manufacturing plants, as indicated by the number of man-hours worked and originating freight car-loadings, declined much more than seasonally but factory employment data available for ten cities revealed a shrinkage in that item of less than 2% compared with June. Bank debits to individual accounts were moderately lower than a month earlier but cotton mill activity after a drop of 21 points in June recovered some 10 points in July. Reports covering the first eleven days of August pointed to a slowing up in the rate of recession and disclosed that in at least one city, industrial employment had again turned upward. On the other hand, the average number of freight cars loaded in Connecticut per day declined from July contrary to the normal seasonal trend.

General business activity in the United States also declined sharply in July due to a substantial contraction in the production of steel and pig iron and in freight car-loadings. Electric power production, silk consumption, automobile output and zinc production were somewhat lower than in June but cotton consumption and boot and shoe production expanded considerably. The extent of the decline in steel ingot production which was unparalleled in previous experience was the result of the expiration of second quarter contracts on June 30 and the resultant almost complete lack of orders during the early part of July. During the first two weeks of August, the weekly business index of the New York Times moved horizontally on a level with July. Lumber production increased materially in anticipation of increased business to be brought about by home modernization and new residential construction.

Wholesale prices on August 11, according to the index of the U. S. Bureau of Labor Statistics, were 1% higher than four weeks earlier, the increase being due to advances in the prices of farm products and foods of 4% and 2%, respectively; all other commodities as a whole showed no change during the interval. The composite index, on the date mentioned above, was the highest since March, 1931, and as a result of the higher prices for farm products together with payments to farmers from processing taxes and drought relief funds, it has been estimated that farm income this year will exceed last year by approximately one billion dollars.



Retail prices continued to work their way higher as the consequence of the increased cost of food, rent, and fuel and light which were offset to some extent by lower prices for clothing. Nevertheless, the index of the cost of living compiled by the National Industrial Conference Board was 5% above a year earlier and the highest in 28 months.

Finance. During the four weeks ended August 11, the number of business failures in Connecticut declined 1% from the corresponding period a year

ago and net liabilities of failures fell off 28%. However, the number of new corporations formed was 16% lower than last year. Real estate transactions dropped off 10% when compared with 1933 but were unchanged from the preceding four week period this year. The volume of mortgage loans moved upwards during July and early August.

Construction. Activity in the construction industry improved moderately during July. In New Haven, the contract was awarded and work started on a new residential quadrangle for Yale University which will cost approximately $1,300,000. In Thomaston, ground was broken early in August for a one-story factory building covering some 30,000 spare feet of floor space.

The total value of building contracts awarded in the United States in July increased, on a seasonally adjusted daily average basis, 5% over June and 45% over July, 1933. Residential building declined substantially when compared with either period. The value of contracts awarded for public works projects decreased 29% from June but was more than double last year's total. Contracts for other non-residential building, however, were not only well ahead of a year ago but were 61% greater in value than in June of this year.

Labor and Industry. Activity in manufacturing establishments in Connecticut experienced a marked recession in July, and in several cities activity was lower than in July, 1933. The index of the number of man-hours worked which is corrected for seasonal variation stood at 37.9% below normal in July against –33.3% in June and –35.2% below a year ago. In Bridgeport, man-hours worked decreased seasonally from June but in four other cities the decline was much greater than normal. Meriden and Bridgeport reported an increase in the number of man-hours worked of 2% and 3%, respectively, over a year earlier but in Bristol, New Britain and New Haven, decreases ranging between 9% and 11% occurred. Factory employment in Hartford increased slightly in July and was 33% higher than in 1933. In Torrington, factory employment dipped 1%, and in Waterbury brass concerns, 5%, from June but in both cities a 6% increase over last year was shown.

Trade. Retail trade in the United States, based on sales by department stores, chain stores and mail order houses dropped approximately 3% after allowance was made for the usual seasonal variation. General Motors sales to consumers, on the other hand, increased 27% over June on a seasonally adjusted basis.

Transportation. Freight car-loadings originating in Connecticut continued their downward trek during July and were lower than at any previous time during the depression. Investigation into the cause of this abnormal development has so far failed to yield a satisfactory explanation.

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Lack of simple information contained in the volume "METHODS AND PROCEDURE IN FEDERAL PURCHASING" has been the only factor in hundreds of instances which has prevented sales in this market. Priced at $10 net this 349 page book can be purchased through the Association.

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We handle shipments to and from all parts of the world.

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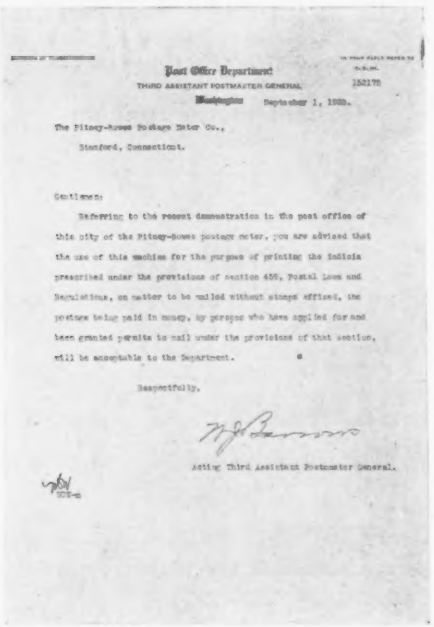
NEW HAVEN CONN.

OFFICE MACHINES

(Continued from page 16)

pen drudgery. This portion of our story has to do with the Romance of the Mails and a modern machine which is of such great assistance in speeding up the delivery of these recorded thoughts.

There is no more fascinating story than the history of communications as it relates to the postal service by whatever name it may have been called in the day it thrived. Although Babylon is believed to have enjoyed a rather advanced civilization in some respects it had no mail carriers for there were no men strong enough to carry even one message inscribed in hieroglyphics on a heavy clay tablet to its destination.



Post Office Department
THIRD ASSISTANT POSTMASTER GENERAL
152178
Washington September 1, 1920.

The Pitney-Bowes Postage Meter Co.,
Stamford, Connecticut.

Gentlemen:

Referring to the recent demonstration in the post office of this city of the Pitney-Bowes postage meter, you are advised that the use of this machine for the purpose of printing the indicia prescribed under the provisions of section 600, Postal Laws and Regulations, on matter to be mailed without stamps affixed, the postage being paid in money, by persons who have applied for and been granted permits to mail under the provisions of that section, will be acceptable to the Department.

Respectfully,

Acting Third Assistant Postmaster General.

POST OFFICE department letter authorizing the use of and approving Pitney Bowes Postage Meters.

Darius, the great Persian ruler, in the year 500 B. C. is reported to have "laid out excellent roads on which royal messengers maintained a regular postal system." Chronicles report, "So the post went out with letters from the King." A postal system was said to have been borrowed from the Persians by the Romans prior to the Christian Era which consisted of a series of improved roads along which "posts" were established. Such "posts" are understood to have been way stations along the route where fresh runners took over the message and relayed it on to the next and finally to its destination. In Japan the Empress Jingo kept informed about conditions in her Empire by a system of messengers, used about 200 A. D. But this post system as established in the earlier days was only for the convenience of kings and other members of the ruling class.

It took time, centuries of it, before Mr. Average Citizen could send a message with any degree of assurance that it would ever reach its destination, not to mention the slowness of its travel. In the Middle Ages obliging travelers on horseback were the only postmen. To make reasonably certain that a letter would be delivered meant hiring a messenger which was rather costly—a luxury only the rich could afford.

In early Colonial days the only means of communication between the colonists in America and their friends broad was to entrust their messages for a goodly consideration to skippers of ships bound for their homeland. What few letters were received from England, addressed to members of the Boston colony, were left at the house of Richard Fairbanks "Receiver of Mail" where the colonists had to call for them.

Until a branch of the British Royal Mail System was established in 1707, carrying of letters was a hit or miss process of relaying by plantation owners, by post riders who were often killed by Indians, and later by private carriers organized into a makeshift postal service by the American agent of Thomas Neale, who as a favorite courtier of the King of England, received a monopoly to establish the system in the colonies.

Benjamin Franklin, who was appointed Crown Postmaster General for the American colonies in 1753, serving until 1774 in that position, was the first to speed mail deliveries. He did it by straightening routes and forcing the carriers to keep going night and day through all kinds of weather, with frequent relays, finally succeeding in cutting the time from New York to Boston from three weeks to six days. In those days it required six-pence to send a one page letter 100 miles. The bill was always paid by the recipient until 1847, when postage stamps, the invention of Sir Rowland Hill, were first introduced into the United States from England.

In sequence came the establishment of the U. S. Post Office in 1794, use of postage stamps in 1847, free carrier delivery in cities and larger towns in 1863, establishment of the money order system in 1864, rural free delivery in 1897, postal savings in 1911, parcel post system in 1913, and finally, in 1920 the authorization of Metered Mail. From carrier to stage coach, to train and steamboat, and to airplane was the revolutionary path of mail dispatch.

Today a letter is carried thousands of miles for a mere 3¢ and if properly addressed, its delivery is certain. Uncle Sam's Post Office Department is one of the biggest business enterprises in the world. It employs 250,000 people, pays out in salaries and wages $500,000,000.00 annually, another $200,000,000.00 for transportation, and handles over 9 billion pieces of first class mail a year and 5 billions of all other classes.

The American people spent $5.78 per capita for postage in 1928, as compared with 37¢ per capita in 1864.

Practically all our present mail equipment has been put to use since 1879. For 73 years after its introduction, the postage stamp remained the only means of prepaying postage on first class mail. In 1904 the U. S. Government authorized the use of

BEAUTY, UTILITY, ACCESSIBILITY, SPEED

NEW STANDARDS OF VALUE

17 Major Improvements — Many More Refinements —

Each created to produce neater and better letters with easier and lessened effort.

Individual Touch Control for every user —

Shift Freedom and Comfortable Keys for your fingers — New Features added, which were suggested by users of our product. These users of our Typewriter made this Machine possible.

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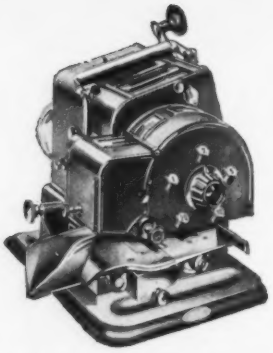
the Permit System for 3rd and 4th class matter when a required number (2000) of pieces, identical in shape, size and content were to be mailed at one time. Under this method the Government collected an advance deposit, charged each mailing against it. Each piece being identical in weight it was for government postal clerks to determine the proper charges for each mailing by what is known as the weight and ratio method. But the system was too impractical to be applied to 1st class mail because of the variance of enclosures. Despite the labor saving devices and methods adopted by the Postal Service there still remained a jam of mail between 5 and 7 P. M., when mail from business houses poured in faster than it could be gotten out. For a letter to miss a given mail train might have meant the loss of an order and perhaps a customer. It was toward the solution of this problem that Walter H. Bowes and Arthur H. Pitney worked prior to 1920 when success crowned their efforts, the necessary legislation being passed by Congress in that year.

Mr. Bowes was President of the Universal Stamping Machine Company organized in 1908 to sell check endorsement machines. Two years later it developed cancelling machines for Post Office use. From its original location at 180 Broadway, New York City, it moved into larger quarters at 30 Church Street in order to care for its increased business, principally in cancelling machine sales to the Post Office Department. So rapidly did the company's business expand from orders received from the Post Office Departments of the United States, Canada and England that it soon moved into still larger quarters at 416 West 33rd Street. Soon a London office was opened, and another plant in Port Chester, N. Y. By 1917 the Company had outgrown its last locations, both of which they had occupied at the same time, and moved to their present location

PITNEY BOWES' first model (Model "A") postage meter machine, only a slight modification from the post office cancelling and postmarking machines.



MODEL "H" multi-denomination meter and mailing machine.

at Pacific and Walnut Streets in Stamford, Connecticut. Associated with Mr. Bowes in these early days were W. B. Manny of the Burroughs Adding Machine Company, E. H. Hotchkiss of Norwalk, and Hudson Maxim.

During this period of close contact with the Post Office Department Mr. Bowes realized that if some system could be evolved that would relieve the congestion of mail after the close of the business day it would render a great service to both the Post Office Department and the business firm. So he began working on a plan to have certain time-consuming operations done in the business office to relieve the congestion at the facing tables and cancelling machines and thus speed up the regular business mail direct to the sorting sections. He heard of Arthur Pitney's invention of a device called a postage meter for printing postage and postmarking mail. This device could be set by the Postmaster and was built to lock out of service when the last impression paid for had been used.

Mr. Pitney had already organized the American Postage Meter Company in Chicago and had applied for patents on this metering device when Mr. Bowes combined with him to form the Pitney-Bowes Postage Meter Company, the name by which the parent producing company is still known. Although the cancelling equipment for Post Offices was still manufactured and sold under the "Universal" trademark, Mr. Bowes' chief concern was to secure the authorization and approval of the Postage Meter and of the new system of mailing, destined to be commonly known as "Metered Mail". In 1920 their efforts met with success, Congress passing the necessary legislation and the Post Office Department approving the meters and setting up Regulations providing for the use of Metered Mail for first class matter.

The first Postage Meter to be set, was for the use of the Pitney-Bowes Postage Meter Company itself, in Stamford on September 16, 1920, while the second was set for the Commercial Travelers Mutual Accident Association of Utica, N. Y., in October of that same year.

Soon a sales subsidiary was organized as The Postage Meter Company which opened its first sales

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The **NEW REMINGTON NOISELESS** is so quiet that you can dictate to it directly—thus saving transcription time. Dictaphone work—free from typewriter clatter—is a delightful new experience. And the very factors that produce quiet—that eliminate noise and vibration—result in longer life and freedom from annoying repairs.

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The **NEW REMINGTON NOISELESS** is a marvel of writing perfection. Characters are always uniformly clean-cut and clear. Letters written on the Noiseless never need an apology for their appearance. And carbons! Whether it be one or fifteen, every copy will rival the original in legibility.

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Here is real speed—the speed that results from light, easy, staccato touch and instantly responsive action. Here is speed without straining effort, without depressing weariness. The New Noiseless is a "restful" machine—kind to nerves and energy. Even the difficulties common to stencil cutting disappear before the smooth operation of this great machine.

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The New Remington Noiseless
Made at
Middletown, Connecticut

YOUR LETTER IS YOUR AMBASSADOR

It speaks for you before those who cannot see you. It makes an impression, good or bad. You cannot afford to be represented by slovenly letters.

No typing, regardless of the machine used, can be better than the ribbons and carbons that produce it.

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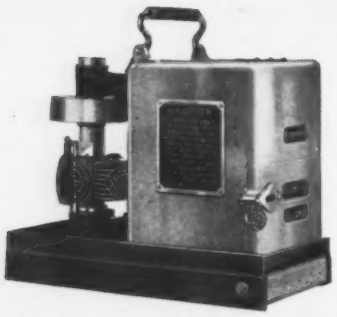
There is a grade for every purpose. Let the Remtico man study your requirements and recommend the ribbons and carbons that will serve you best. He is an expert in his line. Just call the nearest Remington Rand office.



MODEL "M" single denomination meter, set first to meter postage for its makers in Stamford on September 16, 1920.

office in New York City followed by offices in Philadelphia, Chicago and San Francisco. Today, the Company is represented by branches in twenty-seven key cities throughout the United States and Canada, and has affiliations in England and on the continent.

To start with, the Company had only one large model to offer, known as Model "A" which was a modification of the Universal Cancelling & Postmarking machine used in Post Offices. This was equipped with an envelope sealing device and with a postage meter, the latter a detachable unit, which could be taken to the Post Office for the setting of postage. The first machines were placed on a rental basis with the larger Insurance Companies, Banks, Public Utiilties and Department Stores. Soon many of these organizations expressed their desire to purchase these machines outright. It was then decided to establish a price for the machine proper but to maintain title to the Postage Meters, that device which printed the postage. This agreement was reached because Postal officials believed that since the meter printed legal postage (a form of currency), the Government would be better protected against the tampering and misuse of the meter if the full responsibility for its proper operation and maintenance was placed upon the manufacturer or distributor.

At first only the largest companies were solicited because of the price of the equipment and the tremendous volume of mail these machines were capable of handling. When the demand began to be felt from smaller progressive concerns who wished to remove temptation from their clerks and to speed their mail through the Post Office during the end-of-the-business-day rush periods, a second machine, Model "B" to sell for about half the price of the original Model "A" was introduced in 1924. Four years later the Model "F" was introduced to sell for about half the price of the Model "B". In 1930 the Model "H" equipment, operating multi-denomination postage meters provided service for the small business house with moderate size mailings of various classes of matter. This equipment also enabled the larger houses to do away with postage stamps entirely, whereas heretofore it had been necessary for them to maintain a supply of the larger denominations to take care of overweight mail, parcel post and miscellaneous mail matter. In 1930 changes in the Postal Regulations removed the 100 minimum quantity restriction which had applied on first class matter and also extended the use of Metered Mail to parcel post accepting any number of pieces.

The thoroughness of this Company's missionary work is revealed in the increasing revenues and number of pieces of Metered Mail handled by the Post Office Department. From less than 200 million pieces mailed by business houses in 64 cities in 1922, it leaped to 1 billion, 156 million pieces mailed in 274 cities (a postal revenue of $22 million) in 1927. In 1932, a depression year, the number of pieces mailed reached a total of 2 billion, 21 million, 723 thousand, a postal revenue of $41 million, 640 thousand, from 667 cities. All of which is no small accomplishment over a short 10 year period for something as revolutionary as the Metered Mail system.

With Metered Mail, the mailer prints postage and the postmark, seals the envelopes and stacks the mail all in one operation with a postage meter machine. Always before him are two dials one registering the amount of postage used to date and the other the balance still on hand. Through the use of this system and equipment the mailer removes the temptation from his employees to pilfer postage stamps; establishes an accurate accounting of postage funds; speeds up his written messages and parcels to their destination, sometimes as much as a whole day by eliminating time-consuming operations at the Post Office which are still as necessary today on stamped mail as they were twenty years ago when Mr. Bowes and Mr. Pitney were dreaming their dreams about Metered Mail.

The nation wide acceptance, and ever-increasing popularity of Metered Mail is not only revealed in the numerical and postage volume counts, but by the tremendous growth of the Company's factory and office facilities in Stamford, where a large new modern plant several times the size of the combined former floor space produces an ever increasing number of machines each year.

Metered Mail is a fitting climax to the Romance of the American Postal System.

The present officials of the Pitney-Bowes Postage Meter Company, are: Walter H. Bowes, President; W. H. Wheeler, Jr., Vice-President and General Manager; A. K. Viele, Secretary and Assistant General Manager; W. R. Greenwood, General Sales Manager; Harold Camp, Treasurer.

ORIGINAL authorized metered mail imprint made by single denomination meters.

Transportation

(Continued from page 22)

rates because of the enactment of the Intercoastal Act, 1933, which provides among other things that all rate changes must be published on statutory notice of 30 days, thus giving the shipping public ample notice of any contemplated changes in the rate schedule of any individual line which enables the shipper to protect his interests. All former Conference lines will continue to be subject to Agent R. C. Thackera's Tariff S. B.-1 No. 4 and S. B.-1 No. 5, unless given permission by the shipping board to proceed otherwise.

* * *

Railroads Fight Pension Enforcement. On August 15, 150 railroads joined in filing a suit in the District of Columbia Supreme Court asking for an injunction to prevent the federal railroad retirement board from operating the pension law passed at the last session of Congress which requires that railroads pay the first installment of the pension assessment on November 1. The pension assessment calls for 2% of the employes' salaries and 4% of total payrolls to be contributed by the railroads.

The suit was filed by a committee of five attorneys headed by R. V. Fletcher, general counsel for the American Railway Association, on behalf of more than 150 railroads. At the first hearing held on August 15, in which the railroads sought a temporary restraining order to be operative pending a hearing on a permanent injunction, Justice James M. Proctor in the District of Columbia Supreme Court, denied their petition.

* * *

Advisory Board Meeting. The New England Shippers' Advisory Board will hold its next meeting at the Carpenter Hotel, Manchester, New Hampshire, September 28, 1934.

Leather Chair Drowsiness

(Continued from page 1)

in every meeting of every board of directors of every industry in the state, at every stockholders' meeting, and at the meetings of all other types of organizations. But we cannot afford to stop at discussion during these perilous times. Action—and very definite action—in behalf of candidates who appreciate the importance of Connecticut's position in industry, agriculture and commerce, must follow discussion. Political discussions should not be for amusement. What is needed now are ditch-diggers in politics; men and women who will overcome leather chair political drowsiness and make it their business to see that both jobs and investments in Connecticut industries are protected through the selection and election of the right kind of candidates regardless of party affiliation.

*DICTAPHONE

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THROUGH the Dictaphone, many an executive has gained a new idea of the pure Relativity of Time. When the Dictaphone comes to a man's desk, what was formerly a "full day's work" finds itself finished early in the afternoon. Men long hardened to overtime find themselves catching the 4:42.

• Can Dictaphone do this for you? Frankly, we can't say. But it has helped thousands of other men to double their ability to get things done.

• We answer your question by introducing the Dictaphone on a try-before-you-buy basis—loaned until it proves itself.

• That is why we prepared our "Progress" book—to give you an opportunity to know all about the New Model 12 before you even ask for the loan of one. Send for the "Progress" book.

*The word DICTAPHONE is the registered Trade-Mark of Dictaphone Corporation, makers of Dictating Machines and Accessories to which said Trade-Mark is Applied.

DICTAPHONE SALES CORPORATION,
420 Lexington Ave., New York, N. Y.

I would like to look over the new "Progress" portfolio.

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COMPANY.....

STREET ..... CITY .....

Manufactured at Bridgeport, Conn.

SERVICE SECTION

On account of space limitations, the material and used equipment items offered for sale by Association members have not been classified by sizes or usage best adapted. Full information will be given on receipt of inquiry. Listing service free to member concerns.

●● Materials for Sale

COLD rolled steel in coils and in squares, condulets and fittings, remnants of covering materials—velours, velvets, mohair, tapestries, denims, chintzes, and cretonnes, semi-finished and castellated U. S. S. nuts, pulleys, flat and crown face-steel and cast-iron; new shaft hangers, brass wire, brass rods, aluminum tubing, cold drawn steel—mostly hex; miscellaneous lot of material used in the manufacture of molded rubber parts and flooring, knife switches—new and many sizes; carload C. I. drop bases, No. 1025 steel in sizes 4′ x 2′ and 6′ x 2′; lead pipe, lead sheet, acid proof pipe fittings, 124 bars screw stock varying thicknesses and lengths, white absorbent tissue process from cotton, rotary convertor, colors and dyes—large variety, lacquers—several hundred gallons in assorted colors; and soft anneal copper with high silver content in rolls. J. H. Williams wrenches in assorted sizes.

●● Equipment for Sale

ACCUMULATORS, annunciators, baskets, beaders, beamers, bearings, belt stretchers, blowers, boilers, braiders, bronze runners, cans, cards, woolen; car loaders, chain, chairs, chamfer, clocks, time recorders; clock systems, colors and dyes, compressors, condulets, convertors, conveyors, cookers, cooking utensils, doublers, draftsman's table, drop hammers, drops, board; drums, drying racks, dyes, engines, evaporators, extractors or percolators, fans, filtering carbon, folders, forming rolls, frames, furnaces, gears, generators, grinders, grindstones, grinding wheels, guiders, headers, lamp shades, lathes, lifters, looms, De Laski circular; machines, automatic; machines, calculating; machines, compressing; machines, dieing; machines, drilling; machines, filing; machines, filling; machines, folding; machines, knitting; machines, mercerizing; machines, milling; machines, pipe-cutting and threading; machines, pleating down; machines, riveting; machines, screw; machines, threading; machines, tongue and groove; machines, washing; mercerizer equipment; millers, mixers, mills, mills rubber; mixing rolls, motors, oil circuits; oven drawers, paints and lacquers; panels, planers, plungers, pointers, presses, profilers, pulley drives, pumps, reamers, receivers, rheostats, safe cabinets, saws, scales, screens, seamers, shapers, shears, spindles, spinning mules, steam tables, steam warmers, stitcher, 192 monitor corner box switches, tables, tanks, toilet equipment, trucks, ash can; tube closers; wire, wire screw and yarders.

●● For Sale or Rent

FOR SALE. Small plant in St. Johns, Quebec, Canada, with two main buildings of 4,680 square feet and 7,178 square feet respectively, and five other smaller buildings with a total floor space of 13,451 square feet. The plant is conveniently situated on a siding of the Canadian National Railway with tracks of the Canadian Pacific on the opposite side of the plant, but with no siding. Real estate holding is 6½ acres. Plant now owned by Connecticut manufacturer. For further details, Address S. E. 70.

FOR SALE OR RENT. Factory property in Winsted, Conn. containing approximately 47,980 square feet of floor space in ten separate buildings of brick and frame heavy mill construction, slow burning, entirely equipped with automatic sprinklers and steam heated. This property is well located and might be adapted to any use not requiring railroad facilities. The tax rate for 1934 is fixed at 19 mills and the assessment on the property is reasonable. Labor market is good and working conditions in the plant in question are excellent. The plant is in operation at the present time partly by the owners and partly by tenants. Here is an opportunity to buy or rent a well located and substantially built property with a diversity of uses at a reasonable price and on terms which would be attractive. For further information or pictures of the plant, communicate with Herbert F. Fisher, Agent, 983 Main Street, Hartford.

Call or write for many other listings for sale, rent or lease in Connecticut. If our listings do not meet your requirements a thorough search will be made. Address Service Section, *Connecticut Industry*.

FOR RENT—IN DEEP RIVER, CONN.: 45,000 square feet of manufacturing space, sprinklered and heated, with AC or DC Current available. Ideal living and labor conditions and within overnight distance of New York by truck or boat. Write Pratt, Read & Co., Deep River, Conn.

FOR SALE. One 3½ Bliss toggle press in good condition. Address S. E. 76.

FOR SALE—3-5 h.p. and an 8¾ h.p. Cleveland Worm Gear Reduction Units. Also 8 composition toggle presses. A few 30 x 30 steam tables and 2-5 h.p. induction motors. Address S. E. 77.

WANTED TO SELL—LEATHER SCRAP. Connecticut manufacturer of leather belting has constantly a large supply of leather scrap for sale. Address S. E. 78.

●● Employment

OFFICE EXECUTIVE. Man long experienced in office management, accounting as well as in factory production work seeks position of responsibility. Last position with large auto service organization. Excellent references. Address P. W. 266.

GRADUATE CHEMIST—TEACHER OF MATHEMATICS AND SCIENCE—ECONOMICS. Has done work on fats, oils, asphalts and bitumens, textiles and textile chemicals, impregnating treatments, rubber, water sewage, industrial wastes and inorganic analyses. Is willing to do anything. Age 41. Married and has a family. Address P. W. 267.

ELECTRICAL AND INDUSTRIAL ENGINEER. Young man, graudate M. I. T., B.S. and M.S. in electrical engineering. Experience in manufacturing and production research and development cost and time study, industrial engineering and plant layout. General Electric trained. Former chief engineer for Connecticut manufacturer. Considerable experience in research and development of new products of electrical or mechanical nature as well as purchasing and engineering sales. Excellent mechanical and electrical experience. Desires position as engineering or manufacturing executive; development or research engineer, plant engineer or purchasing. Excellent references. Address P. W. 268.

RECENT STATE COLLEGE GRADUATE. Young man, age 29, graudate of class of 1930 at Connecticut State College, and who has done temporary work for the Connecticut Agricultural Experiment Station, now seeks clerical position in industry or commerce because of lack of opportunity in the agricultural field. His general education and personality qualify him for a position of this kind. Salary requirements moderate. Address P. W. 269.

PRESIDENT AND TREASURER of a Connecticut corporation now liquidating is open to take active management of publicity, marketing, finance and personnel departments where administrative ability is required. Address P. W. 270.

INVENTOR wishes to contact a manufacturer and distributor on a royalty basis or outright sale of following items: Vegetable Dicing and Cubing machine suitable for homes, hotels and restaurants; Universal Jar Wrench, very simple and unique in design, removes or tightens all screw type bottle caps and jar covers from ½″ to 3″ diameter, no adjustment required. NOW have some sales on these items. Address P. W. 271.

ARMY OFFICER retiring October 1, 1934, desires position with Connecticut manufacturer. Graduate U. S. Naval Academy. Twenty-eight years service in army and navy, including over two years in air service. Broad administrative and executive experience. Has had supervision of much construction and technical work and of procurement for the army. Well qualified in organization and handling personnel and records. Age 46. Address P. W. 272.

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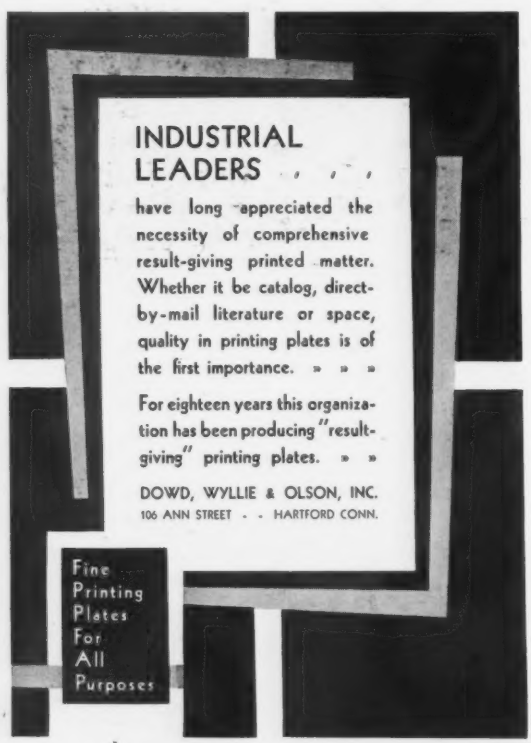

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